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Solar Powered Solid Oxide Fuel Cell with Thermoelectric Generator

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Abstract

Durable, location independent, environmental-friendly sources of energy which allow for modular, few moving parts, low operating noise, high electricity generation efficiency and compact technology are highly desirable. Solid oxide fuel cells (SOFC) are promising for such energy system development, since they are energy efficient and, if pure hydrogen is used, have virtually no emissions of greenhouse gases except water and heat. However, the technology is still in the early phases of development due to lack of a design for single hydrogen fuel cells, and problems with hydrogen production and storage. In this study, an all year round operation home generator recovering its waste heat, integrated with photovoltaic panels supplying energy to split recyclable water (electrolysis) into hydrogen and oxygen has been put in place. The mathematical models of the unit as energy, charge, efficiency, activation and concentration losses of gases in channels were elaborated. The models gave necessary information for assessing and optimizing the design. The experimental results have demonstrated a remarkable energy generation and recovering with the integrated system, lower noise, possibility of achieving hydrogen economy and therefore clean environment.

Keywords: solar, recycled water, SOFC, TEGs, efficacy

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1. Introduction

Since the problems with energy supply and use are related to global warming, environmental concerns such as air pollution, land destruction, and may include emission of radioactive substances; there is growing consensus that our approach to deriving and using energy must be changed. This in turn drives a renewed search for credible alternative energies and more efficient technologies [1]. Indeed, energy is one of the main factors that must be considered in the discussions of sustainable development. In response to the critical need for a cleaner energy technology, some potential solutions have evolved, such as solar and fuel cells [1].

Fuel cells generate direct current (DC) electricity, like photovoltaic (PV) panels, and heat through an electrochemical combination of gaseous fuel (hydrogen) and oxidant gas (oxygen from the air) through electrodes and via an ion conducting electrolyte without the need for direct combustion as an intermediate step. This gives much higher conversion efficiencies than conventional thermo mechanical methods or a battery because it is not limited by Carnot efficiencies [2-4]. However, unlike a battery, a fuel cell does not run down or require recharging. A fuel cell operates as long as both fuel and oxidant are supplied to the electrodes and without emission; is extremely attractive from an environmental point of view.

Solid oxide fuel cells (SOFCs) are a part of the family of fuel cell technologies, which are flexible in the choice of fuels such as hydrogen, natural gas, and other renewable fuels [5, 6]. The difference of solid oxide from other types of fuel cells is the catalyst that reacts with hydrogen and oxygen to form water, heat, and power. Solid oxide fuel cells use a solid, non-porous metal oxide, denoting the name solid oxide [7, 8]. SOFC technology is the most demanding from a material standpoint and is developed for its potential market competitiveness arising from the followings: First, they are composed of all-solid-state materials [4, 6]. Second, the cells can operate at temperatures as high as 1000°C, which enables high reactant activity and therefore facilitates fast electrode kinetics (large exchange currents) and reduced activation polarization. This is especially advantageous as precious platinum electro-catalysts are not required and the electrodes cannot be poisoned by carbon monoxide. As a result, carbon monoxide is a potential fuel in SOFCs. The only loss is the ohmic losses due to charge transport across components and component interfaces [9, 10]. Third, the solid state character of all SOFC components means the unit can be modular and that there is no fundamental restriction on the cell configuration. Fourth, the fuel cell itself has no moving parts, making it quiet enough to be installed indoors and its configuration allows a compact design without requiring expensive materials for production, so manufacturing costs could be reduced in the future. These advantages may enable SOFCs to be located anywhere as desired to eliminate the need for transmission lines, making the energy available where there is no grid electricity. SOFCs could provide higher power density, and simpler designs than fuel cells based on liquid electrolytes. SOFCs do not have problems with electrolyte management (liquid electrolytes, for example, which are corrosive and difficult to handle). SOFC can also provide high-quality waste heat for gas turbine, steam turbine and thermoelectric generator (TEG), warm the home or provide thermoelectric refrigeration and air conditioning without refrigerants harmful to the environment. SOFCs have a potential long life expectancy of more than 40000–80000 h [11].

The electrolysis process, which Sir William Grove invented in 1839 was reversed fifty years later, by scientists Ludwig Mond and Charles Langer (which they coined the fuel cell), to produce electricity [5]. Emil Baur, a Swiss scientist and his colleague Preis experimented with solid oxide electrolytes in the late 1930s, using such materials as zirconium, yttrium, cerium, lanthanum, and tungsten oxide, achieving the operation of the first ceramic fuel cell at 1000°C in 1937 [5, 9]. By the late 1950s, research into solid oxide technology began to accelerate at the Central Technical Institute in Hague, Netherlands, Consolidation Coal Company, in Pennsylvania, and General Electric, in Schenectady, New York [6-13]. The promise of a high temperature cell that would be tolerant of carbon monoxide and use a stable solid electrolyte continued to draw modest attention. Researchers at Westinghouse, for example, experimented with a cell using zirconium oxide and calcium oxide in 1962 [12, 13]. More recently, climbing energy prices and advances in materials technology have reinvigorated work on SOFCs, and a recent report noted about 40 companies working on these fuel cells that include Global Thermoelectric's Fuel Cell Division, at the Julich Research Institute in Germany [14]. Venkatasubramanian et al [14], Rosendahl et al [15] and Brawn [16] reported work done on SOFC, with heat recovering thermoelectric generator (TEG), which shoot the efficiency of the system higher than 60%. Research work also continued to find a way to see if production of hydrogen can be integrated with the SOFC system. However, no attempt has been made to integrate SOFC with photovoltaic (PV) electrolysis and at the same time incorporate thermoelectric generator (TEG) in the system. A foray to achieve this is the essence of this presentation.

2. Materials and Method

A tripartite system as shown in Figure 1 is considered in this study, which is an integration of PV panel, an electrolysis compartment within the PV panel, (for hydrogen fuel production), eight layers of stacked SOFC in the vertical direction (from bottom-to-top); air-tight interconnect (current collector); air-side gas micro-channels, porous cathode, solid electrolyte, porous anode, fuel-side micro-channels, interconnect on fuel side and four TEGs. Figures 2c (i and ii) depicts the major components. The length of the SOFC is 128mm, width 100mm and height 80mm. The water vessel is made up of perplex glass with connected tubes, which lead away water into the PV-electrolysis panel and receive hydrogen and oxygen from the SOFC.

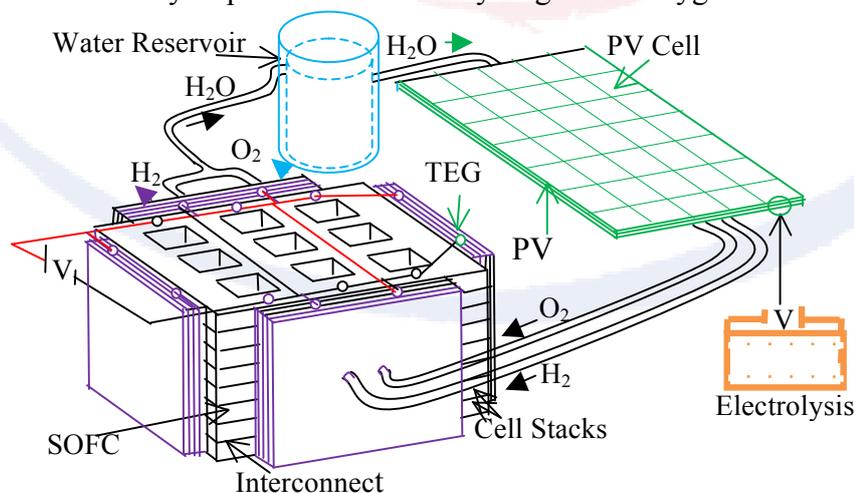


Figure 1: Components of the Electrolysis, Solid Oxide fuel Cell and TEG Integrated Unit.

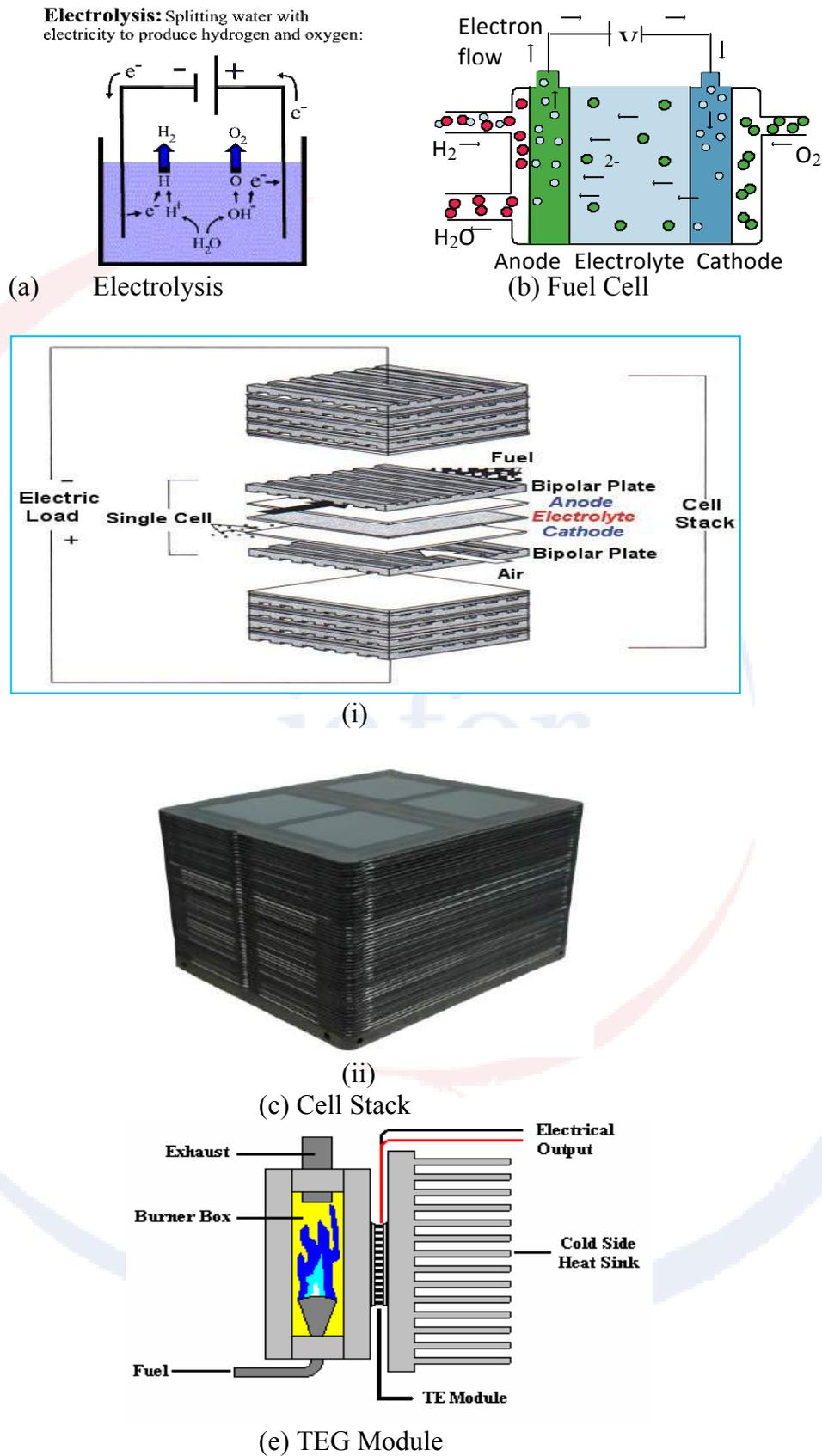


Figure 2: Major Component of Solar Power SOFC with TEGs

Oxygen and hydrogen are introduced to the micro-channels of the SOFC via manifolds that would support a thin film structure to generate current. In the

circumstance, the materials involved in the construction are diverse in nature. The materials for the electrolysis of water, the fuel cell and TEG components are selected based on suitable electrical conducting properties required of these components to perform their intended functions; adequate chemical and structural stability at high temperatures encountered during operation as well as during fabrication; minimal reactivity and inter diffusion among different components and matching thermal expansion among different components are also considered [9, 17].

The PV panel is made of monocrystalline semi-conductors with a single photoelectrolysis nanoscale process: photon absorption in the PV creates a local electron-hole pair that electrochemically splits a neighboring water molecule. The semiconductor electrode is not in contact with the solution, but only air, so that corrosion problems cease; long lifetime is thus expected, the current density is reduced and the capital cost of electrolyzer is eliminated. The anode is made up of a combination of nickel and yttria stabilized zirconia, the cathode is made up of lanthanum strontium manganate and the electrolyte is of yttria stabilized zirconia. The cathode contact is lanthanum strontium chromate; the anode contact is nickel mesh and the sealing is with barium silicate glass. To increase voltage output to produce significant amounts of power, the SOFC elements, each including an anode, electrolyte, and cathode, are stacked (analogous to a multi-layered sandwich) with interconnecting plates between them that connect the anode of one cell to the cathode of the next cell in the stack to form the heart of a clean power generator. The cell frame is made up of doped lanthanum chromium ferrite ($\text{LaCrO}_3\text{Fe}_{22}\text{APU}$ (JS-3)), particularly suitable from its high electronic conductivity, its stability in the fuel cell environment and its compatibility with other cell components. The basic topology of the tubular design is retained and translated into planar geometries [18, 19]. Therefore, the cells are flat-plates bonded together and placed one on top of the other to form a stack as shown in figure 2c (i and ii) and hydrogen and air flow down channels in the bipolar plates. The cells are connected in electrical series to build a desired output voltage and can be configured in parallel to build up the current or combination of series-parallel or as single units, depending upon the type of applications. The number of fuel cells in a stack determines the total voltage, and the surface of each cell gives the total current.

The TEGs (figure 2d) attached to the SOFC consist of semi-conductors and a compression assembly system [14, 15]. The compression assembly system aims to decrease the thermal contact resistance between the thermoelectric module and the SOFC surface. The size of the module used in the TEG is 12 mm thick by 120mm length and 80 mm in height. The module consists of 4 couples of p- and n-type Si-Ge elements. Sixteen modules are arranged around the fuel cell with a rectangular cross. At each side of the fuel cell, four modules each are electrically connected in series in each side of the fuel stack to increase the voltages and the current of the system is double by having the four modules connected to each of the other four modules in the three other sides of the fuel stack in parallel using Molybdenum electrodes by brazing method.

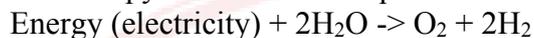
3. Theoretical Formulation and Analysis of the System

Electrolysis, SOFC and TEG modeling techniques have advanced significantly, with models at both micro-scales and macro-scales being developed. In SOFC and electrolysis of water, complex multi-physical and chemical phenomena interact with

transport processes. With SOFC, microscopic models are aimed at building better electrodes and electrolyte, while macroscopic models target stack optimization [19].

3.1: Assessment of the PV Hydrogen Fuel for the SOFC

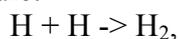
The process of electrolysis of water must provide the energy for the dissociation plus the energy to expand the produced gases [17]. Both of these are included in the change in enthalpy. The chemical equation for electrolysis is:



As water is not a very good conductor, in order for there to be a flow of charge all the way around the circuit, water molecules near the cathode are split up into a positively charged hydrogen ion, which is symbolized as H^+ , and a negatively charged "hydroxide" ion, symbolized as OH^- :



The hydrogen atom meets another hydrogen atom and forms a hydrogen gas molecule:



and this molecule bubbles to the surface to form hydrogen gas. In this way, a closed circuit is created, involving negatively charged particles - electrons in the wire, hydroxide ions in the water. The energy delivered by the solar panel is stored by the production of hydrogen.

A detailed analysis of the electrolysis process makes use of the four thermodynamic potentials and the first law of thermodynamics. This process is presumed to be at 298K and one atmosphere pressure. The system's work and internal energy are:

$$W = p\Delta v$$

(1)

$$\Delta U = \Delta H - p\Delta v$$

(2)

where W is the work done; p , pressure; Δv , change in volume; ΔU , change internal energy and ΔH , change in enthalpy $- p\Delta v$. This change in internal energy must be accompanied by the expansion of the gases produced, so the change in enthalpy represents the necessary energy to accomplish the electrolysis. However, it is not necessary to put in this whole amount in the form of electrical energy. Since the entropy, $T\Delta S$, increases in the process of dissociation, the amount $T\Delta S$ can be provided from the environment at temperature, T . The amount which must be supplied by the PV solar panel is actually the change in the Gibbs free energy, ΔG :

$$\Delta G = \Delta H - T\Delta S$$

(3)

The utility of the Gibbs free energy is that it is a measure of the amount of energy, which must be supplied to get the process to proceed.

Calculation of the theoretical (maximum) volume, v of the hydrogen produced, in cubic meters, from the other data for the current, I and the time, t using Faraday's First Law is provided by the equation [4]:

$$V_{\text{theoretical}} = (R I T t) / (F p_a z),$$

(4)

where $R=8.314$ Joule/(mol Kelvin), I = current in amps, T is the temperature in Kelvins ($273 + \text{Celsius temperature}$), t = time in seconds, F = Faraday's constant = 96485 Coulombs per mol, p_a = ambient pressure = about 1×10^5 Pascals (one Pascal =

1 Joule/meter³), z = number of excess electrons = 2 (for hydrogen, H₂), 4 (if oxygen production is being measured).

Finally, calculation of the efficiency of the electrolysis by comparing the volume produced to the theoretical maximum volume yields:

$$\text{Efficiency (in \%)} = 100 \times V_{\text{produced}} / V_{\text{theoretical}} \quad (5)$$

3.2: Chemistry and Thermodynamics of the SOFC.

The physical-chemical transport phenomena within SOFC are complex, and so are the corresponding mathematical and numerical methods presently employed [19]. These include convection-diffusion of multi-species gas mixtures in micro-channels and porous media, heat and mass transfer due to electrochemical reactions and associated Ohmic heating, as well as kinetic (activation) terms. In SOFC, the ideal electric potential is a function of the fuel and oxidant concentrations, temperature, and pressure. The actual potential is less than the theoretical value due to kinetic, mass transfer and electrical losses. Current density is dependent on both voltage and cell resistance. Sources and sinks of mass, species and heat, are a function of current density. Thus the transport problem is fully coupled, that is, mass transfer in H₂ and O₂ channels and porous media; heat transfer in all constituent materials; electrochemical reactions at interfaces between electrolyte and electrodes; electronic and ionic charge transfer through solid and porous media. Convective heat transfer is the dominant transfer mechanism in the micro-channels, while conduction is important in the solid materials; i.e. the problem is one of so-called conjugate heat transfer.

At the fuel cell, the positive anode will cause the negatively charged hydroxide ion (OH⁻) to travel across the container to the anode, where the extra electron that the hydroxide stole from the hydrogen atom earlier is removed, and then the oxygen can react violently with the hydrogen gas, such that the hydrogen burns, or combusts, with the oxygen to form water and heat, generating electricity and according to the chemical reaction:



Understanding the impacts of variables such as temperature, pressure, and gas constituents on performance allows for the optimization of the design of the modular fuel cell units as well as the maximization of the performance of systems applications. A logical first step in understanding the operation of a fuel cell is to define and determine its ideal performance; losses arising from non-ideal behavior can be calculated, and then deducted from the ideal performance to describe the actual operation [4]. This is provided by the chemistry and thermodynamics of the reaction as follow:

Chemistry

Anode side: $2\text{H}_2 \rightleftharpoons 4\text{H}^+ + 4\text{e}^-$ and

at the cathode side: $\text{O}_2 + 4\text{H}^+ + 4\text{e}^- \rightleftharpoons 2\text{H}_2\text{O}$

Net reaction: $2\text{H}_2 + \text{O}_2 \rightleftharpoons 2\text{H}_2\text{O}$

Thermodynamics

$\text{H}_2 + \frac{1}{2}\text{O}_2 = \text{H}_2\text{O} + \text{energy}$, where the energy is:

$$\text{Energy} = \Delta H_{\text{rev}} = \Delta G_{\text{rev}} + T\Delta S_{\text{rev}}$$

(6a)

$$\Delta G = (\Delta H_0)_{H_2O} - T(S_{H_2O} - S_{H_2} - 0.5S_{O_2})$$

(6b)

$$\eta_f = \frac{\Delta G_{rev}}{\Delta H_{rev}} = 1 - \frac{T\Delta S_{rev}}{\Delta H_{rev}} = \frac{\Delta G^0}{\Delta H^0} + \frac{RT}{\Delta H^0} \ln \prod_k P_k^{v_k}$$

(7)

ΔG_{rev} is the maximum useful work associated with a chemical reaction, ΔH is the maximum heat associated with a chemical reaction at rev reversible conditions and η_f is fuel cell efficiency. There are many ways in which the Gibbs function can change: temperature, pressure, amount of material, surface area and elastic stretch:

$$dG = -SdT + VdP + \sum \mu_i dn_i + \gamma dA + f dl$$

(8a)

If everything is kept constant (for constant temperature, pressure, area and length), except material, then the changes in the Gibbs function is the result of the changes in the composition of the system:

$$dG = \sum \mu_i dn_i$$

(8b)

If the Gibbs function is known in terms of pressure, temperature and amount of material (T, P, n), then, with a variety of partial derivatives, all other thermodynamic properties can be calculated. If the Helmholtz function is expressed in terms of (T, v, n), where n stands for number of moles, then we have access to all the other parameters also. However, if we only know G in terms of (T, v, n), then we cannot perform the necessary differentials.

A detailed analysis of the fuel process makes use of the same thermodynamic potentials, but the process of electrolysis reversed in SOFC. In comparing the fuel cell process to its reverse reaction, electrolysis of water, it is useful to treat the enthalpy change as the overall energy change. So in the electrolysis/fuel cell pair where the enthalpy change is 285.8 kJ, 237.1 kJ of energy has to be put in to drive the electrolysis and the heat from the environment will contribute $T\Delta S=48.7$ kJ to add up to it. Going the other way in the fuel cell, 237.1 kJ as electric energy is produced, but have to dump $T\Delta S = 48.7$ kJ to the environment. For this ideal case, the fuel energy is converted to electrical energy at an efficiency of $237.1/285.8 \times 100\% = 83\%$. This is far greater than the ideal efficiency of a generating facility which burned the hydrogen and used the heat to power a generator. Although real fuel cells do not approach this ideal efficiency, they are still much more efficient than any electric power plant which burns a fuel. An interesting difference between the fuel cell and the combustion process is that many fuel cells attempt to release the higher enthalpy of reaction, whereas combustion usually releases the lower enthalpy (or internal energy) of reaction.

When the substance is a charged particle (such as an electron or an ion) the response of the particle must be included to an electrical field in addition to its chemical potential. This is called the electrochemical potential, $\bar{\mu}_k$ given as [4]:

$$\bar{\mu}_k = \mu_k + z_k F \phi_k$$

(9a)

μ is the chemical potential, z is the charge on the particle, F is Faraday's constant and ϕ is the field under consideration. At reversible reaction in equilibrium,

$$\sum_k \nu_k \mu_k = 0$$

(9b)

$$E_{rev} = E_c - E_a = \frac{1}{2F} [\mu H_2 + \frac{1}{2} \mu O_2 - \mu H_2 O]$$

(10)

For hydrogen fuel and oxygen, the free energy is:

$$\Delta G^0 = \mu^0 H_2 O - \mu^0 H_2 - \frac{1}{2} \mu^0 O_2$$

(11)

where E_{rev} is the reversible electromotive force, E_c , the electromotive force at the cathode and E_a , the electromotive force at the anode. The superscript, o stands for values obtained at atmospheric conditions.

For an ideal gas, integration of the expressions for the dependence of amount of material on the Gibbs function, leads to the following relationship [4]:

$$\Delta G = \Delta G^0 + RT \ln Q$$

(12)

Q contains all of the activity of terms of the reactants and products, each raised to its stoichiometric coefficient. $\Delta G = -nFE_{rev}$ and $\Delta H = -nFE_{therm}$. The relation between cell potential, E and free energy then leads to the following equation:

$$-nFE = -nFE^0 + RT \ln Q$$

(13a)

If the reaction is proceeding at the electrodes, there will be a reduction in the concentration of reactants. The Nernst equation describes effects of reduction in reactant concentration. Rearranging equation (13a) gives the Nernst Equation:

$$E = E^0 - \frac{RT}{nF} \ln Q$$

(13b)

When all participants have unit activity ($a=1$), then $Q=1$ and $\ln Q=0$; and $\Delta G = \Delta G^0$, reaction proceeds, Q changes, until finally $\Delta G=0$ and the reaction stops. This is equilibrium. The chemical equation of reactants and products is usually given by the reaction quotient:

$$Q = \frac{a_C^y a_D^z}{a_A^w a_B^x}$$

(14)

which always has products in the numerator and reactants in the denominator and explicitly requires the activity of each reaction participant. Each term is raised to the power of its stoichiometric coefficient; terms involving solids, pure liquids, and solvents are left out, solutes appear as the concentration (in moles) and gases appear with their partial pressure. Substituting back equation (14), with water as the product and hydrogen and oxygen as the reactants along with their pressures, into equation (13b),

$$\begin{aligned} E_{rev} &= -E^0 + \frac{RT}{2F} \ln \left[\frac{p_{H_2} \cdot p_{O_2}^{\frac{1}{2}}}{p_{H_2O}} \right] \\ &= \frac{RT}{2F} \left\{ \ln K_p - \ln \left(\frac{p_{H_2O}}{p_{H_2} p_{O_2}^{0.5}} \right) \right\} \end{aligned}$$

(15)

This Nernst reversible voltage (E_{rev}) is the open-circuit voltage of the SOFC cell when the current density is zero. E is the electromotive force (emf) or reversible open circuit voltage (V). $E_0 = 1.1$ V is the standard potential (the emf at standard pressure), K is the universal gas constant and p is the partial pressure.

The efficiency of an actual fuel cell is often expressed in terms of the ratio of the operating cell voltage to the ideal cell voltage:

$$\eta_{thermal} = \frac{E_{actual}}{E_{ideal}} \times \frac{I}{I/0.83} = \frac{0.83E_{actual}}{E_{ideal}}$$

(16)

The output voltage, V_{fc} of the SOFC is given by Stambouli and Traversa [5]:

$$V_{fc} = E_{rev} - V_{act} - V_{con} - V_{ohmic}$$

(17)

where V_{act} is the activation loss, V_{con} is the concentration loss, and V_{ohmic} is the ohmic loss.

Chemical reactions, including electrochemical reactions, must overcome energy barriers, called activation energy, for the reaction to proceed. This leads to activation polarization. The activation loss is given by the Butler–Volmer equation [20-221]:

$$I_{fr} = I_f - I_r = I_o \left[\exp\left(\frac{\alpha_a nF}{RT}\right) V_{act} - \exp\left(-\frac{\alpha_c 2nF}{RT}\right) V_{act} \right]$$

(18)

where I_0 is the exchange current, α_a is the coefficient of anode charge transfer, α_c is the coefficient of cathode charge transfer and $n = 2$ is the number of moles of electrons transferred.

The concentration voltage loss occurs due to the mass transfer resistance to the flow of the reactants and the products through the porous electrodes. Concentration voltage loss can be calculated as [21, 23]:

$$V_{con} = \frac{RT}{nF} \ln\left(\frac{C_s}{C_b}\right)$$

(19a)

The potential difference (ΔE) produced by a concentration change at the electrode is called the concentration polarization:

$$\Delta E = \eta_{con} = \frac{RT}{nF} \ln\left(\frac{C_s}{C_b}\right) = \frac{RT}{nF} \ln\left(1 - \frac{i}{i_L}\right)$$

(19b)

where C_s is the concentration at the triple-phase boundary (tpb), where the gas, electrolyte, and electrode meet; C_b is the bulk concentration of reactant; i , current, i_L limiting and n is the number of moles of electrons participating in the reaction (in this case, $n = 2$).

The Ohmic losses occur because of the resistance to the flow of ions in the electrolyte and the resistance to the flow of electrons through the electrode materials. The inherent resistance of a fuel cell governed by the change in cell temperature is given by [21]:

$$V_{ohmic} = \left[\gamma \exp \left(\beta \left\{ \frac{1}{T_0} - \frac{1}{T} \right\} \right) \right] I_{fr} = r I_{fr}$$

(20)

where T is the fuel cell temperature; $T_0 = 973$ K, $\gamma = 0.2 \Omega$, and $\beta = -2870$ K are the constant coefficients of the fuel cell; and r is the internal resistance of the SOFC.

The performance of the fuel cell depends on the electrochemical reactions that take place at the tpb. A relationship that governs the mass flow rate conservation in the fuel cell is given by [22]:

$$\frac{v}{RT} \frac{dp}{dt} = N_x^{in} - N_x^o - N_x^r$$

(21)

where v is the volume of the fuel cell electrode, N_x^{in} is the input mole flow rate, N_x^o is the output mole flow rate, N_x^r is the mole flow rate reacted, p is the partial pressure, and x is the species. The electricity generated from the electrochemical reaction inside the fuel cell is given by [22]:

$$I_{fc}^r = \frac{4FN_x^r}{n}$$

(22)

where $n=2$ for hydrogen and water and is 1 for oxygen

Irreversible losses, fuel depletion, and fuel utilization serve to reduce fuel-cell efficiency. Therefore, the component efficiencies in the system are:

- Reversible efficiency - theoretical efficiency: $\eta_{rev} = \Delta G / \Delta H$
- Voltage efficiency- efficiency based upon operating voltage: $\eta_{volt} = E / E_{rev}$
- Faradaic efficiency: $\eta_F = i / i_F$
- Utilization efficiency - reactant utilization: the fuel utilization is defined

$$\text{by } \eta_u = n_{reacted} / n_{total} = \frac{H_2, \text{ consumed}}{H_2 + O_2}$$

- Auxiliary loads - parasitic power consumption: $\eta_a = 1 - P_{pl} / P_{total}$

The total efficiency is multiplicative and expressed, therefore, as:

$$\eta_{total} = \eta_{rev} \cdot \eta_{volt} \cdot \eta_F \cdot \eta_u \cdot \eta_a$$

(23)

In general, the cell energy balance states that the enthalpy flow of the reactants entering the cell will equal the enthalpy flow of the products leaving the cell plus the sum of three terms: (1) the net heat generated by physical and chemical processes within the cell, (2) the direct current, DC power output from the cell, and (3) the heat loss from the cell to its surroundings. The first general purpose fuel cell model was a Nernst-limited model designed to compute the maximum attainable fuel cell voltage as a function of the cell operating conditions, inlet stream compositions, and desired fuel utilization. As operation deviates from the set point conditions at a reference state, a voltage adjustment is applied to account for perturbations. Separate voltage adjustments are applied for current density, temperature, pressure, fuel utilization, fuel composition, oxidant utilization, oxidant composition, cell lifetime, and production year [8].

3.3: Thermodynamics of the Thermoelectric Generator to Recover SOFC Waste Heat

The efficiency of a thermoelectric generator (TEG) is the amount of electrical power generated, P_{elec} for a given amount of heat input, P_h , that is, $\eta_{TE} = P_{elec} / P_h$. This efficiency can be calculated as a function of the hot-side temperature, T_h , the cold-side temperature, T_c , and the dimensionless figure of merit, ZT as [14, 15, 24]

$$Q_{max} = \frac{S_m^2 T_c^2 N_c}{\rho \lambda} + \frac{T_c - T_h}{\lambda / 2 k_m N_c} \quad (24)$$

$$COP_{generator} = \eta_{TE} \cdot \frac{Q_{TE}}{Q_h} = COP_C \left[\frac{\sqrt{1 + ZT_m} - 1}{\sqrt{1 + ZT_m} + \frac{T_c}{T_h}} \right] \frac{Q_{TE}}{Q_h} \quad (25)$$

where $COP_C = (T_h - T_c) / T_h$ is the Carnot COP, $\eta_{TE} = COP_C \left[\frac{\sqrt{1 + ZT_m} - 1}{\sqrt{1 + ZT_m} + \frac{T_c}{T_h}} \right]$ and

$$ZT_m = \frac{S^2 \sigma T}{k} = \frac{\alpha S^2}{(k_p + k_n)} T = \frac{S^2 (T_c + T_h)}{k \rho} = \frac{\sigma \Delta T}{k} T = 1.2 \text{ to } 1.8 \text{ with } 1.6 \text{ as}$$

viable figure; $T_m = 1/2(T_h + T_c)$ and T_h and T_c are the hot and cold temperatures of TE module, respectively. The total efficiency of the generator can be defined as:

$$\eta_g = \eta_{he} \cdot \eta_h \cdot \eta_e \quad (26)$$

where: η_{he} is the efficiency of heat exchange of the generator η_h the ratio of heat flux through the elements in the modules to that from the inner shell to outer shell and η_e the thermoelectric conversion efficiency of the elements. The following are design specifications for the thermoelectric module: maximum difference in temperature, $dT_{max} = 10.5^\circ C$, $p_{max} = 11 \text{ Watts}$, Seebeck's co-efficient, $S = 2.0 \times 10^{-4} \text{ V/K}$; resistance, figure of merit, $z = 0.002346$, $\rho = 1.10 \times 10^{-3} \text{ ohm-cm}$ and thermal conductivity, $k_p = 1.55 \times 10^{-4} \text{ watts/m-K}$); ρ , resistance (ohms) of the semiconductors; σ , electrical conductivity; k_p ; material thermal conductivity for p-type and k_n , thermal conductivity for n type semi-conductor and R , resistance, in Ω of the system. Δt stands for change in temperature.

5. Results and Discussion

A model of the system was built and test run under laboratory conditions. Input water was distilled to ensure impurities is reduced to the barest minimum. A two month period was used in winter and summer respectively to determine these seasonal effect on performance and values averaged over the period. Digital instrumentations were used to gather data, which were assessed by the formulae presented above. Obtained results are presented in tables 1-3 and figures 3-6 depict the characteristic performance.

Table 1: Photo-Electrolysis for Hydrogen Production

Time	Energy required for H ₂ O Electrolysis					
t Mins	T K	P _{panel} W	ΔH J	TΔS J/K	ΔG J	η _{Elect}
30	303.0	49.5	290.6	5.0	285.7	0.983
60	305.0	49.8	292.5	5.0	287.6	0.983
90	307.0	50.2	294.5	5.0	289.5	0.983
120	309.0	50.5	296.5	5.1	291.3	0.983
150	317.0	51.8	304.1	5.2	298.9	0.983
180	320.0	52.3	306.9	5.2	301.7	0.983
210	321.0	52.5	307.9	5.3	302.6	0.983
240	320.5	52.4	307.4	5.2	302.2	0.983
270	319.0	52.1	306.0	5.2	300.8	0.983
300	318.0	52.0	305.0	5.2	299.8	0.983
330	316.3	51.7	303.4	5.2	298.2	0.983
360	313.0	51.2	300.2	5.1	295.1	0.983
390	311.0	50.8	298.3	5.1	293.2	0.983
420	309.0	50.5	296.4	5.1	291.3	0.983
450	307.0	50.2	294.5	5.0	289.5	0.983
480	305.0	49.8	292.5	5.0	287.6	0.983

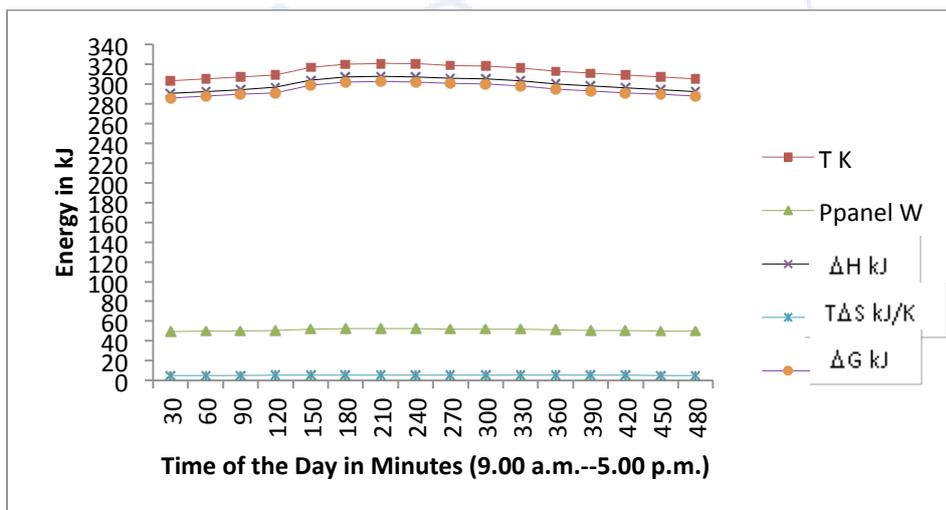


Figure 3: Energy Required for H₂O Electrolysis

The first step was to determine the effect of solar energy trapping on the system outputs. From table 1 and figure 3, it comes out that varying solar insolation vary the amount of the H₂ input yield, which has an impact on the total plant power as well as the electricity generated by the thermoelectric device. The next step was to determine the energy production in the SOFC as in table 2 and figure 4.

Table 2: Thermodynamics of SOFC

$H_2 + \frac{1}{2}O_2 \rightarrow H_2O$							
1 bar reactant pressure (standard conditions)							
Temp in °C	H ₂ O	ΔH (kJ/mol)	ΔG (kJ/mol)	η _{theoretical}	E (V)	E _{rev} (V)	η _{thermal}
25	LHV (vapor)	-241.8	-228.6	94.5	1.253	1.185	0.785
	HHV (liquid)	-286.0	-237.3	83.0	1.482	1.229	0.688
80	LHV	-242.3	-226.2	93.3	1.256	1.172	0.774
	HHV	-283.8	-233.7	92.2	1.471	1.212	0.684
130	LHV	-242.8	-223.9	92.2	1.258	1.160	0.765
	HHV	-282.1	-230.4	81.7	1.462	1.195	0.678
200	LHV	-243.8	-219.1	89.8	1.259	1.131	0.746
400	LHV	-245.0	-210.2	83.1	1.267	1.119	0.733
600	LHV	-247.2	-198.1	80.1	1.277	1.023	0.665
800	LHV	-248.3	-186.3	75.3	1.285	1.017	0.657
1000	LHV	-249.4	-175.8	70.5	1.288	0.908	0.585

Where HHV is higher heat value (liquid state) and LHV is lower heat value (gaseous state)

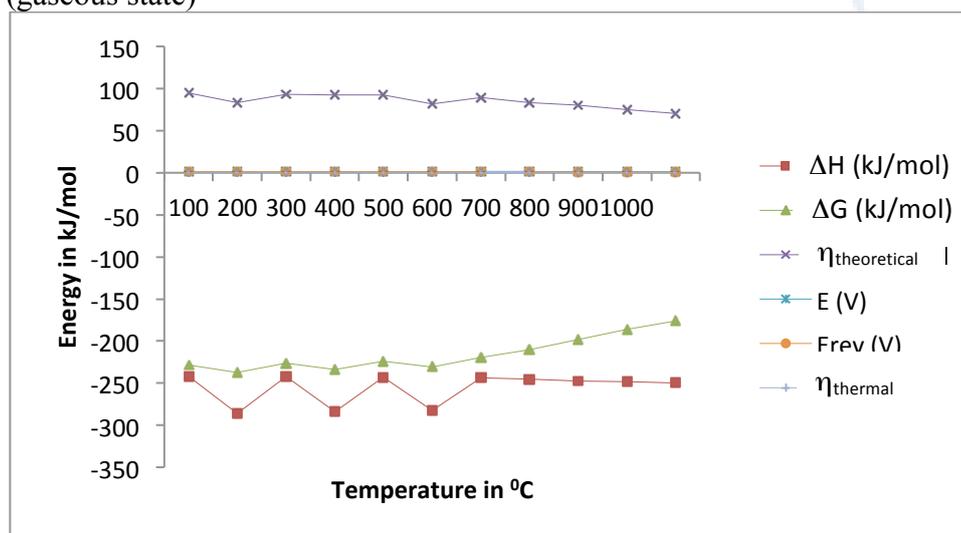


Figure 4: Energy of SOFC as a Function of Temperature

There is a marked difference between the results obtained at low temperature as indicated by the zigzag lines and at high temperature where the energy released appears linear. This is because at the low temperature part of the fuel is still in liquid state yielding both the higher and lower heating values of energy. At about 700⁰C upward, figure 4 shows that while the energy released by the fuel continues to increase; there is marked drop in the available energy and the efficiencies (theoretical and thermal) of the system. However, there is only slight change in the voltage, which decreases as well.

Table 3: Solar Based SOFC/TEG Power Generation

Time		Energy released by SOFC				Energy recovered in TEG		Total energy	Relative Efficiency with and without TEG	
t Mins	T K	ΔH kJ	$T\Delta S$ kJ/K	ΔG kJ	P_{SOFC} W	dT_{max} K	P_{TEG} W	$P_{SOFC} + P_{TEG}$	η_{SOFC}	$\eta_{SOFC+TEG}$
30	715	463.3	116.9	346.4	89.3	5.1	1.3	90.6	0.258	0.262
60	823	533.3	134.5	398.8	102.7	6.0	1.4	104.1	0.258	0.261
90	882	571.5	144.1	427.4	110.1	6.4	1.5	111.6	0.258	0.261
120	934	605.2	152.6	452.6	116.6	6.7	1.6	118.2	0.258	0.261
150	979	634.4	160.0	474.4	122.2	7.0	1.7	123.9	0.258	0.261
180	1323	857.3	216.2	641.1	165.2	7.2	2.3	167.5	0.258	0.261
210	1270	822.9	207.6	615.3	158.5	7.3	2.2	160.7	0.258	0.261
240	1114	721.9	182.1	539.8	139.1	7.2	2.0	141.1	0.258	0.261
270	1018	659.7	166.4	493.3	127.1	6.9	1.8	128.9	0.258	0.261
300	991	642.2	162.0	480.2	123.7	6.8	1.8	125.5	0.258	0.262
330	945	612.4	154.4	458	118.0	6.6	1.7	119.7	0.258	0.261
360	926	600.0	151.3	448.7	115.6	6.4	1.6	117.2	0.258	0.261
390	903	585.1	147.6	437.5	112.7	6.2	1.6	114.3	0.258	0.261
420	897	581.2	146.6	434.6	112.0	6.0	1.6	113.6	0.258	0.261
450	834	540.4	136.3	404.1	104.1	5.5	1.5	105.6	0.258	0.261
480	773	500.9	126.3	374.6	96.5	5.2	1.4	97.9	0.258	0.261

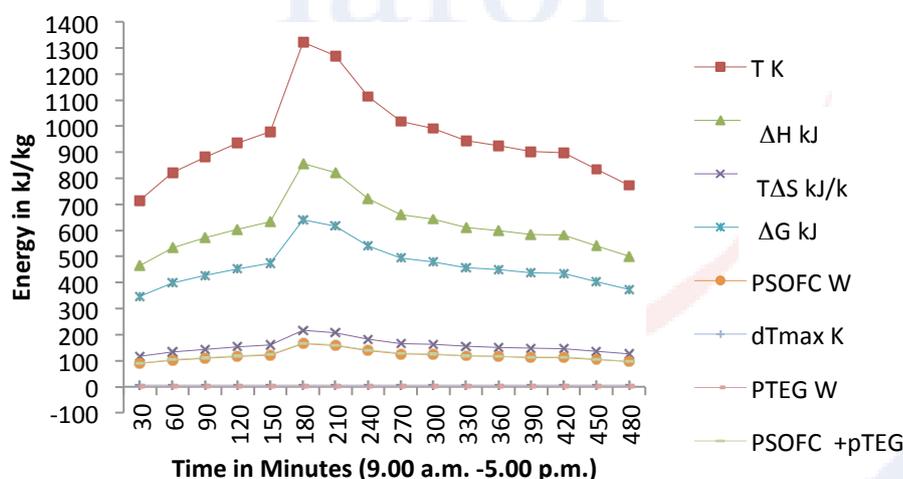


Figure 5: Energy Released by SOFC and Recovered by the TEG

The thermodynamic analysis as shown in figure 5 indicates that the SOFC with TEG has essential advantage as the total energy tends to be higher, thereby increasing the conversion of chemical energy of hydrogen into electrical energy. Again, the performance of the combined unit shows that this is dependent on the solar insolation; lower in the morning and evening than the afternoon. . The obtained results show that a remarkable energy can be generated and recovered from combining the photoelectrolysis with SOFC and TEGs. The thermodynamic analysis shows the SOFC with TEG has essential advantage as the total energy tends to be higher, thereby increasing the conversion of chemical energy of hydrogen into electrical energy. These observations can have important implications for the development of

the integrated unit with enhanced performance in this part of the world where seasonal temperature is above 30°C (303K).

Finally, all the efficiencies of the electrolysis, SOFC without TEG and SOFC with TEG were computed and presented in figure 5.

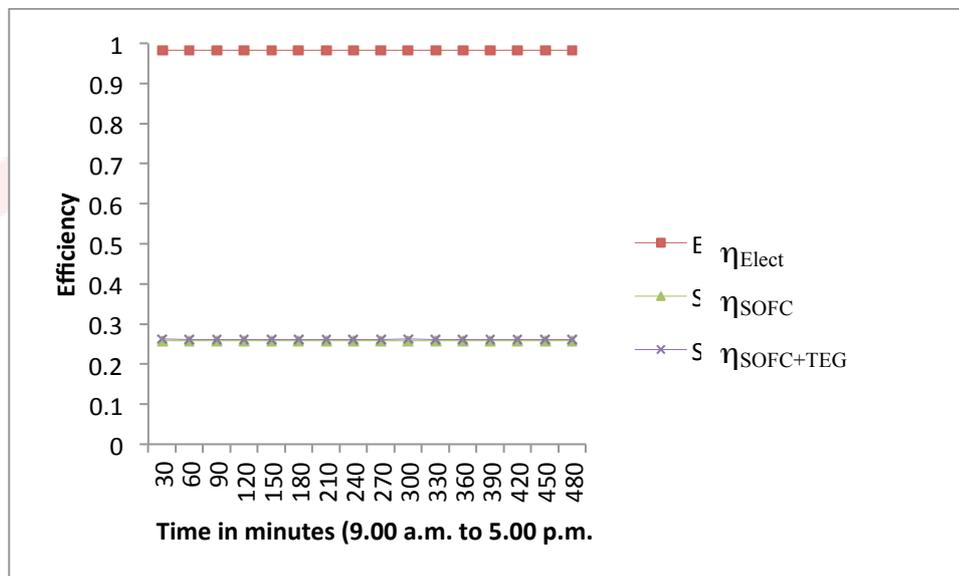


Figure 6: Comparative Efficiency of the Electrolysis, SOFC and SOFC+TEG Processes

From figure 6, it is found that the time and therefore, temperature dependence of the three components has a significant effect on the power, efficiency and optimal energy variables; increasing the temperature difference will always improve the power and efficiency. However, because of the effects of temperature dependence of the components, with the increase of temperature difference, the power improves more and more slowly while the efficiency remains constant. From figure 5, where the efficiency of electrolysis process is estimated to be a constant value of 98.3 per cent, the SOFC with TEGs recorded maximum efficiency of 25.8; apart from this value, their combined efficiency stood at average value of 26.1.

6. Conclusion

The main achievement of this study is the development of a modular SOFC unit that is powered by a photovoltaic solar panel, has TEGs attached and can be used for future research. The mathematical models of the unit as energy, charge, efficiency, activation and concentration losses of gases in channels were elaborated. The models gave necessary information for assessing and optimizing the design. Analysis indicated that the performance of the entire system is strongly dependent on intensity of solar insolation; lower in the morning and evening than the afternoon.

In this part of the world, the experimental results have demonstrated a remarkable energy generation and recovering with the integrated unit, which could have important implications for the development of a unit with enhanced performance. It is similarly critical that the technologies be demonstrated to perform and achieve the projected performance targets and demonstrate long life.

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Nomenclature

η	efficiency
ΔE	potential difference produced by a concentration change at the electrode called the concentration polarization
ΔG_r	reversible available energy change
ΔH_{rev}	reversible enthalpy change
μ_i	chemical potential
C_b	bulk concentration of reactant
C_s	concentration at the triple-phase boundary (tpb), where the gas, electrolyte, and electrode meet
E	electromotive force (emf)
E_{rev}	reversible electromotive force
E_{therm}	thermal electromotive force (voltage)
F	Faraday's constant
F	Faraday's constant
H	enthalpy of the system
i	current
I	current in Ampere
I_0	exchange current
L	limiting
n	number of moles of electrons participating in the reaction
n_i	species in moles
N^{in}	input mole flow rate

N^o	output mole flow rate
N^r	mole flow rate reacted
P	partial pressure
P	pressure
p_a	ambient pressure in Pascals
Q	the activity of terms of the reactants and products, each raised to its stoichiometric coefficient.
R	universal gas constant
T	fuel cell temperature
T	operating temperature of the fuel cell in Kelvins
t	time in seconds
T	temperature in Kelvins
$T\Delta S_r$	reversible energy loss
T_{fc}	minimum fuel cell temperature constant
$T\Delta S$	system energy loss
U	internal energy of the system
V	voltage
V	volume of water input
V_{act}	activation loss
V_{con}	concentration loss
V_{ohmic}	ohmic loss.
W	work done on the system
x	species for the fuel cell
z	charge on the particle or number of excess electrons
α_a	coefficient of anode charge transfer
α_c	coefficient of cathode charge transfer
β	fuel cell maximum temperature constant
γ	resistance in ohms
$\Delta G/dG$	change in available energy
ΔH	change in enthalpy
ΔU	change in internal energy
Δv	change in volume
η_e	thermoelectric conversion efficiency of the elements.
η_h	ratio of heat flux through the elements in the modules to that from the inner shell to outer shell
η_{he}	efficiency of heat exchange of the generator
ϕ	the field under consideration

Student Satisfaction with Hybrid and Face-to-Face Teaching Approaches in an English Course

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Abstract

Hybrid courses combine technology with innovative teaching practices to facilitate learning. This paper studied satisfaction of students who experienced a hybrid learning environment (online classes + face-to-face classes) and compared the perceptions of hybrid and traditional face-to-face delivery approaches. The data were collected from 300 students enrolled in a fundamental English course at a private university in Thailand, using two sets of questionnaire. A semi-structured interview was also conducted at the end of the course to elicit more information. The results of the study revealed that students were satisfied with both hybrid delivery approach and its components designed to suit the target group at a high level in almost items. It also found that students had higher perception of hybrid format employed the first time at the university when compared to the traditional face-to-face classroom. This can be concluded that hybrid instruction can be used as an alternative in other English courses. A few obstacles of hybrid instruction were also discussed in the paper after they were investigated by the semi-structured interview.

Keywords: hybrid teaching, blended learning, satisfaction, language teaching

Introduction

The advancement in communication and network technologies has created more innovative instructional delivery and learning solutions for learners at all levels. Learners now have opportunities to access the learning resources from anywhere at any time. They are no longer working only on stand-alone computers and CD-ROMs, but now they are also able to access mass of resources on the web. With the help of Internet, there are many ways of becoming autonomous learners (Chapelle, 2001). These applications of technology are consistent with language acquisition theories that emphasize a natural language environment and authentic communications, and have been found to be effective in achieving instructional goals in language development (Hempel & Stickler, 2005). In contrast to a conventional class setting, the use of technologies can support the theoretical and practical requirements of language instruction without the physical presence of both teacher and learners.

As a result of increasing support from most educational institutions on the use of technologies as a medium and tool for language learning, language teachers have shifted their practice in using computers for their teaching. Therefore, many tools of on-line learning such as discussion forums, synchronous CMC, and emails are more introduced to many courses. Among many instructional delivery methods, hybrid instruction is growing rapidly because it can deliver meaningful learning experiences. Hybrid instruction is a combination of online and face-to-face (FTF) methods. Many researchers have expressed an interest for hybrid learning since this is a new and untested fad in education (Clark & Mayer, 2007). Hybrid learning and blended learning are two terms that have been used synonymously (So & Brush, 2008). The concept of hybrid learning, however, is not simply a combination of online and FTF instruction. Rather, it focuses on optimizing achievement of learning objectives by applying the “right” learning technologies to match the “right” learning to the “right” person at the “right” time (Graham, 2005).

Hybrid courses show great potential over the other course modalities in several aspects. First, hybrid mode has the potential benefits of making courses more accessible and learning more convenient for students, providing faculty with greater flexibility in how they structure their time, and increasing classroom space for institutions to serve more students without building more classrooms (Clark & Mayer, 2007). Second, providing students with a choice of communication tools greatly increased student satisfaction (Garrison & Vaughan, 2008). Computer technologies have made it possible for students and teachers to meet virtually any time anywhere such that distance has become irrelevant when it comes to oral interaction (Hempel & Hauck, 2004). Huge flood in Thailand in October 2011 which affected classroom meetings caused our university to implement a hybrid course to facilitate learning. So, it was the first time our faculty staff adjusted the format to be a kind of “hybrid.” Not only the teachers, but students also needed to adjust themselves to the new instructional environment.

Students Satisfaction with Online, F2F, and Hybrid Instruction

To fully understand hybrid learning, many researchers also look at students’ attitudes toward the three modalities: online, F2F, and hybrid. When compared online with F2F instruction, it was found that students enrolled in the online course were significantly

less satisfied with the course than the traditional classroom students on several dimensions (Summers, Waigandt, & Whittaker, 2005). Peterson and Bond (2004) also found that students perceived that they learned more through FTF, even though their course performance was no different than the online students.

Many studies have found students in hybrid classes to be more satisfied with their course experiences as compared to their traditional, face-to-face classes. Lim and Morris (2009) have reported that student satisfaction increases when blended learning is adopted. Similarly, Vernadakis, Giannousi, Antoniou, & Kioumourtzoglou (2012) evaluated students' satisfaction with blended learning course delivery compared to a traditional face-to-face class format in a general multimedia course in physical education. Results indicated that a blended course delivery is preferred over the traditional lecture format. These findings suggest that students' satisfaction could increase when the teacher provides learning environments not only in a traditional classroom, but in an asynchronous online system as well. Moreover, student satisfaction and success rates in blended courses slightly superior to traditional courses (Melton, Graf, & Chopak-Foss, 2009; So, 2009; Schober, Wagner, Reimann, Atria, & Spiel, 2006; Taradi, Taradi, Radic, & Pokrajac, 2005).

For hybrid learning environments, it is particularly important to obtain feedback from students, which may throw light on the appropriate proportion of online and face-to-face components we should include in the delivery of the program. The degree of student satisfaction plays an important role in evaluating the effectiveness of the designed course. The results will provide management insight into developing effective strategies that will allow educational institution administrators and teachers to create new educational benefits and value for their students (Wu, Tennyson, & Hsia, 2010).

Purposes of the Study

Much of the research literature has focused on comparing student satisfaction in hybrid and face-to-face environments in the field of technology, but few studies have investigated differences in satisfaction in the field of language learning. It is necessary to understand how students view hybrid learning. Thus, this study sought to further understand students' satisfaction on implementing a hybrid instructional approach (online delivery + face-to-face (F2F)) in an English course. The following question will guide this study: "What are the perceptions of students exposed to a hybrid instructional delivery on its impact on their learning such as learning attitudes, communication, learning styles, and technical understanding?" For the purpose of this study, a hybrid course is defined as an English course in which approximately 50% of classroom meetings are replaced by online learning activities.

Methodology

Respondents

Three hundred students from eight sections enrolled in a fundamental English entitled EN112 were selected to respond to the questionnaire since they had an experience of conventional 100% face-to-face format. The respondents in this study were male and female students (53% and 47% respectively), aged between 18 and 21. They were

from nine faculties (Communication Art, Fine and Applied Arts, Law, Engineering, Humanities, Science and Technology, Accounting, Business Administration, and Economics). They were enrolled in the second semester of academic year 2011. In this semester, they were required to take this English course with a new teaching format called “hybrid.” With regard to ethical approval, all the respondents in this study were voluntary and anonymous. They had been informed that they could withdraw from the reply whenever they felt uncomfortable. Allowing the author to use their responses for publications, the respondents also signed a consent form that briefly described the study before completing the questionnaire.

Research Instruments

The instruments used to collect the data were two sets of questionnaires adapted from Park (2011) and an interview. There were two sets of surveys to assess students’ perception on the hybrid approach. The first set of survey questions comprised two parts, mainly gathering students responses on satisfaction related to the hybrid delivery approach and hybrid components designed for this course. Each part in the first set contained eight questions in a form of five-point Likert rating scale. The second set of questions asked students to compare the hybrid delivery with traditional F2F delivery. On ten items, students were required to choose which approach they believed was better. The draft was reviewed by three colleagues and pilot-tested with a small sample of students. The reliability coefficients of Cronbach’s alpha for the first set were .82 and .87 respectively. Another instrument, a semi-structured interview, was conducted with fifteen students to elicit more details to support the findings gained from the quantitative method.

Data Analysis

For the quantitative analysis, means and standard deviations were used to analyze students’ satisfaction with the hybrid delivery approach and its components. A descriptive analysis was conducted to report the mean scores and standard deviations in tables based on the following ranges: 1.00-1.50 = very low, 1.51-2.50 = low, 2.51-3.50 = moderate, 3.51-4.50 = high, 4.51-5.00 = very high. Percentages were used to investigate students’ perceptions on the hybrid delivery approach when compared with the conventional FTF delivery approach. Data got from the interview were categorized and presented.

Course Format

The typical course format of the previous offerings is presented in Figure 1. Students and the teacher met in a classroom twice a week and each 2-hour F2F class meeting was prepared for reading, writing, and speaking activities. An hour usually was assigned for a study in a language laboratory. Therefore, every class was designed in a F2F format. This repeated every week throughout the semester.

Figure 1. Typical F2F Course Delivery Format before Converted to Hybrid Format

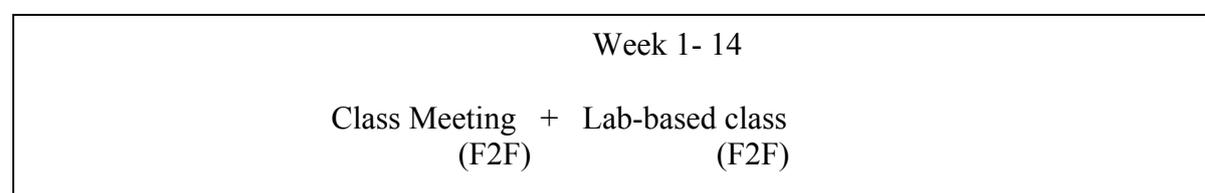
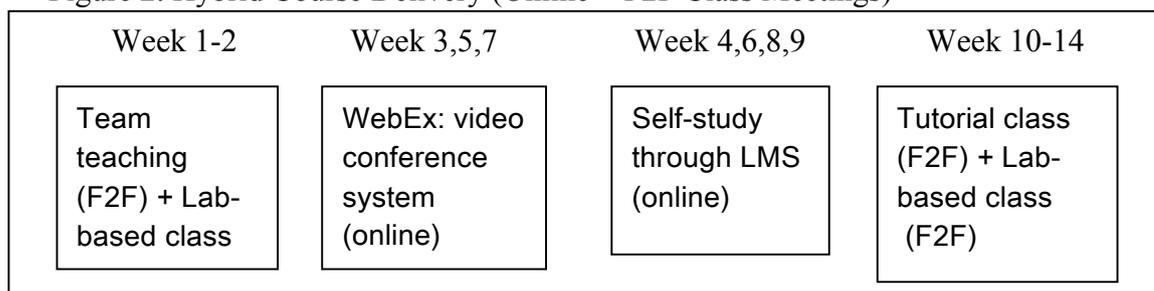


Figure 2. Hybrid Course Delivery (Online + F2F Class Meetings)



In this study, the traditional format was converted to a hybrid format. Instead of combining F2F class meetings and lab-based classes together in each week, in this new format, the teacher delivered the subject matter in both online and F2F format. For the new design, instructional process begins with team teaching as we see a lot of benefits of this approach. First of all, team-teachers share responsibilities and thus lighten each other's workloads, especially in the large-size classes. Second, team-teachers can improve the overall quality of the language lesson as the teaching job is assigned to each teacher based on their strong points. As such, team teaching can provide opportunities to make the best use of each teacher's ideas and experiences. Lastly, team-teachers can show students how teachers cooperate with each other. For a fundamental English course, team-teaching in a large class was very useful when there were not enough classrooms. About 200 students were gathered in a big room and taught by team-teachers for the first two weeks.

The second component which is new for all teachers is WebEx: video conference system. WebEx is designed to be a virtual classroom where the teacher and students can meet and talk. With a camera and microphone, an interaction between both sides can occur based on a pre-set schedule. Video conference system helps students save time traveling to campus. It also solves the problem of limited classrooms. Students are required to participate in on-line classes for three times as scheduled.

The next component in this hybrid teaching course includes Learning Management System (LMS). It refers to server-based software that controls access and delivery of online learning resources through a standard web browser. Students are required to study online materials as well as do quizzes, assignments, and tasks. LMS can show scoring and tracking of students' progress. Two means of communication available for teachers and learners include the announcement and discussion boards. Announcement is used to give all students any new information about the course, including the latest news and upcoming events while the discussion board is a forum of communication where both teachers and learners can post their messages and read the comments from others.

Instruction in tutorial classes is arranged in a small group format, providing an opportunity for students to brainstorm ideas and receive feedback on written drafts. This makes the actual writing process less burdensome. Teachers can identify the strengths and weaknesses of individual students, help them develop understanding and improve their attitudes of learning English. Tutorial classes are scheduled in the last step of hybrid format with a hope that classroom repair will be done during that time.

Results

Table 1 showed that the mean scores of satisfaction with hybrid delivery approach were at a high level in six items. There were two items which students rated at very high and moderate levels. That is, students had a very high level of satisfaction with taking responsibility in learning while they have a moderate level of satisfaction with efficient communication or interaction. The three highest mean scores fell on item no. 1 (encouraging students to have more responsibility in learning), followed by item no. 8 (feeling comfortable), and item no. 2 (promoting active learning).

Table 1 Students' satisfaction with Hybrid Delivery Approach

Statement	Mean	S.D.	Level	Rank
1. The hybrid delivery encouraged students to have more responsibility in their learning.	4.89	.31	very high	1
2. The hybrid delivery promoted active learning/ participation.	4.47	1.15	high	3
3. The hybrid delivery made the class interesting.	4.41	.49	high	4
4. The hybrid delivery allowed efficient communication or interaction with the teacher.	3.34	1.11	moderate	8
5. The hybrid delivery improved language skills.	4.32	.47	high	5
6. The hybrid delivery made the class engaging.	3.95	.96	high	7
7. The hybrid delivery provided a good learning experience.	4.01	.78	high	6
8. The hybrid delivery made students feel comfortable.	4.49	.50	high	2

Table 2 showed that the mean scores of satisfaction with the hybrid course components were at a high level in seven items. The first highest mean score fell on item no. 3 (team teaching), followed by item no. 6 (learning management system) and item no. 4 (tutorial classes). The only one item which was rated at a moderate level was WebEx video conference.

Table 2 Mean and Standard Deviation of Students' Satisfaction with the Hybrid Course

Components	Statement	Mean	S.D.	Level	Rank
	1. Satisfaction with the course contents	4.13	.73	high	5
	2. Satisfaction with the design of hybrid course	4.18	.60	high	4
	3. Satisfaction with team-teaching	4.49	.50	high	1
	4. Satisfaction with tutorial classes	4.32	.49	high	3
	5. Satisfaction with WebEx video conference	3.30	1.08	moderate	8
	6. Satisfaction with learning management system	4.41	.47	high	2
	7. Satisfaction with means of communication such as Facebook, e-mail, and forum	4.01	.78	high	6
	8. Satisfaction with online course materials	3.66	.95	high	7

Table 3 showed that students agreed that the hybrid approach was better than the 100% FTF delivery approach in nine items. They acknowledged "more responsibility", "more active learning", "more interesting", "more language skill improvement", "more engaging", "a better learning experience", "more understanding of content", and "more comfortable" as reasons. Moreover, 77 % stated that they

would like to study in a hybrid approach if they could make their own choice. However, 52.3% still believed that FTF allowed more efficient communication with the teacher while almost half the students (47.7%) expressed the opposite opinion.

Table 3 A Comparison of Students' Perception on FTF and Hybrid

Statement	Hybrid	Face-to-face
1. Which course delivery approach encourages you to take more responsibility in your learning?	81.7 %	18.3%
2. Which course delivery approach promotes more active learning/ participation?	70.7%	29.3%
3. Which course delivery approach made the class more interesting?	77.7%	22.3%
4. Which course delivery approach allows more efficient communication or interaction with the teacher?	47.7%	52.3%
5. Which course delivery approach improves more language skills?	77.7%	22.3%
6. Which course delivery approach makes the class more engaging?	68.7%	31.3%
7. Which course delivery approach helps you understand the topics /contents more easily?	76.0%	24.0%
8. Which course delivery approach provides a better learning experience?	68.3%	31.7%
9. If you have to take an English course again, which course delivery approach will you choose?	77.7%	22.3%
10. Which course delivery approach makes you feel more comfortable?	71.3%	28.7%

Interview Results

The interview results brought about two interesting issues concerning the drawbacks of studying with a hybrid delivery approach. The first one was about obstacles to communicating through WebEx video conference. Seven students stated that video conference should not have been included in this course since the equipment was not available in good condition. They specified technical problems occurring when they were studying through WebEx. For instance, students who did not have their own computer could not totally depend on the lab. The main problem came from the equipment in the language lab on campus which was rather old and out of order such as microphones, speakers, and cameras. As a result, they could not communicate well with their teacher. Four students agreed that studying online through video conference was useful and acceptable, but the problem was about unfamiliarity with video conference operation, so it was rather difficult for them to communicate online with the teacher smoothly. If the university provided more time for training, it would be more efficient. However, three students did not perceive video conference as a problem; they really love it and found it a new learning experience. The second critical issue was about communication with the teacher. Ten out of fifteen respondents identified some difficulties of interaction with the teacher during on-line learning. The discussion board was not convenient in case they required a lot of explanation. Contacting by e-mail was not fast since the teacher did not reply the message immediately. However, five respondents did not see it as a big problem; they thought the situation turned better when tutorial classes started.

Discussion

The results of the analyses have important implications for learning and teaching as they suggest that to optimize the success of a hybrid learning approach to language learning, there is a need to cater for students' satisfaction and to maintain a desirable balance between the FTF and online modes of delivery.

The first discussion was about student satisfaction with hybrid delivery approach which was at a high level in nearly all items. This might be because this approach is a combination of FTF and online classes which provide more flexibility. Since learning English with hybrid format was rather new for many students, they seemed to be excited in it. Also, they paid much attention and put more effort to their study in order to earn good scores. Interestingly, the mean scores of satisfaction with the hybrid course components were at a high level in seven out of eight items. The results indicate that the components designed for this English course were rather beneficial and satisfying. The reason supporting these results might be because there was a variety in the hybrid course delivery. It can be assumed that blended learning fit in the context. Team teaching and tutorial methods in face-to-face environment could support their learning while the use of technology concerning video conference, and Learning Management System was a new learning experience for them, motivating them to be more responsible. Students also benefited from receiving fast feedback online. As we know that this was the first time students experienced hybrid, proportion of components was limited with only 33 % of online classes in order that more time were spent in FTF classes. By so doing, students could adjust themselves easily to the new learning environment.

The second issue for discussion was about students' higher perception on hybrid than traditional approach. Although this is the first time for them to experience hybrid instruction, they can adapt themselves easily and seem to be happy with it. This is due to the fact that hybrid instruction blends the use of technology-based asynchronous teaching methods and traditional teaching methods to give students more control of their own learning and promote greater interaction and cognitive engagement (Allen & Seaman, 2006). This finding was consistent with other studies in the literature review which seem to indicate that student satisfaction and success rates in hybrid courses was slightly superior to traditional courses (Melton, Graf, & Chopak-Foss, 2009; So, 2009; Schober, Wagner, Reimann, Atria, & Spiel, 2006; Taradi, Taradi, Radic, & Pokrajac, 2005). To conclude, a hybrid course can be a new choice for language teachers who would like to make more use of technology in their courses.

Conclusion

The findings in this study suggest that hybrid instruction which blends the use of technology and traditional methods can be an alternative for English courses since it is a kind of worthwhile learning experience for students. The positive feedback from students implies that they open up their mind to accept new things. Such learning lets them have more control on their learning. In order to make hybrid instruction more beneficial and meaningful, teachers might need to choose the hybrid format which suits contents and objectives of the course. Apart from that, the problem of the equipment or learning tools should be resolved; everything should be ready before the

course starts. This will help to promote and support interaction between students and teachers.

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A Developmental of Environmental Ethic and Learning Achievement in Environment Impact Assessment Course by Action Learning Style

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Abstract

The research aimed to find the relationship between environmental ethic development and learning achievement in the environmental impact assessment course. It used five patterns of learning process in the classroom of third year students of the Environmental Science Program in the Faculty of Science and Technology at Valaya Alongkorn Rajabhat University under the Royal Patronage. This method consists with Participatory Learning, Learning by Doing, Experiential Learning, Thinking Skill, and Creative Thinking. Finally the results were as follows: 1) for environmental ethic development in the environmental impact assessment course, student was improved in five moral contents are including honesty, responsibility, perseverance, discipline, and focus on the achievement. 2) for learning achievement in the environmental impact assessment course, it was found that students in general after learning was significantly higher than before at the statistic level of 0.5

Keywords: Environmental ethic, Learning achievement, Environment Impact Assessment, Action learning style

Introduction

Nowadays, an environment situation filled with the problem was shown in Figure 1. Environmental problems are mainly caused by human activities. Environmental problems may come from nature, for example, volcanic eruptions, forest fires, and earthquakes. Cause of the problem comes from human activities more than the natural. Environmental problems that cause effect on biological component consist of humans, animals and plants. Environmental impact caused to humans, resulting in both human use values and quality of life. The impact of the environmental problems caused to plants and animals may cause impact on the type, quantity, proportion and distribution of organisms in nature.

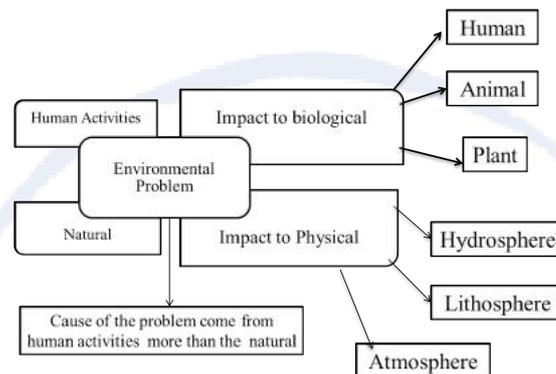


Figure 1 Causes and effects of environmental problems.

The International Association for Impact Assessment (IAIA) defines an environmental impact assessment as "the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made (Daniel et al., 2004). EIA is used as a decision aiding tool rather than decision making tool. There is growing dissent about them as their influence on decisions is limited. Improved training for practitioners, guidance on best practice and continuing research have all been proposed (Jay et al., 2006). EIAs has been criticized for excessively limiting their scope in space and time. No accepted procedure exists for determining such boundaries. The boundary refers to 'the spatial and temporal boundary of the proposal's effects'. This boundary is determined by the applicant and the lead assessor, but in practice, almost all EIAs address only direct and immediate on-site effects (Lenzen et al., 2003) Development causes both direct and indirect effects. Consumption of goods and services, production, use and disposal of building materials and machinery, additional land use for activities of manufacturing and services, mining and refining, etc., all have environmental impacts. The indirect effects of development can be much higher than the direct effects examined by an EIA. Proposals such as airports or shipyards cause wide-ranging national and international effects, which should be covered in EIAs (Shepherd et al., 1996) Broadening the scope of EIA can benefit the conservation of threatened species. Instead of concentrating on the project site, some EIAs employed a habitat-based approach that focused on much broader relationships among humans and the environment. As a result, alternatives that reduce the negative effects to the population of whole species, rather than local subpopulations, can be assessed (Fernandes., 2000)

To study of environmental ethic development in EIA course by Action Learning style.
To study of learning achievement development in EIA course by Action Learning style

Methodology

Populations in this study are undergraduate students in Environmental Science Program, Faculty of Science and Technology. The sampling random was using purposive sampling. 18 undergraduate students was study in the third years of Environmental Science Program, Faculty of Science and Technology.

In this study was using the study plan of 15 weeks in semester 2/2013. The environmental ethics of students was evaluation using by questionnaires. An environmental ethics comprised 45 items. There were four level (from 1-4) on each score rubrics. In an achievement test was test the knowledge in the topic of Environmental Impact Assessment. Consisted of 20 multiple choice items (four choices each). The effectiveness was determined form the consistency index of content, language and accuracy. As determined by 3 experts, the consistency index was between 0.60-1.00.

In the study plan using active learning style in learning process are consist of participatory learning, learning by doing, thinking skill, experiential learning, and creative thinking. Evaluation of the environmental ethic, the topic of environmental ethics are consists of honesty, responsibility, diligence, discipline, and achievement motivation. Environmental impact assessment knowledge was using by achievement test of for student. Level of the cognitive using 6 domain (Bloom, 1976) are consist of knowledge, comprehension, application, analysis, synthesis and evaluation. Duration time for evaluated, Students test their knowledge of the environmental impact assessment and to evaluate their environmental ethics in the first week. The students evaluate their own environmental ethic in the second time in week 8. After 15 weeks, students were testing their knowledge about the environmental impacts assessment and to evaluate their environmental ethics in time 3.

Results and Conclusions

The Activities was developed by three projects. First, related on the promoting environmental ethic in university by the student. To volunteer activities that develops the clean around in university. Second, the temple development of students volunteering projects at Panya Nantharam temple, Pathumthani. The project activities include the developing of the 5 moral. The unselfishness and selfless related to student by activities in the field of volunteerism for development in the monastery. Third, related on the big cleaning day project, to volunteer activities that develop the clean around Faculty of Science and Technology after flood fighting in university.

Environmental ethic development of students in EIA course

An assessment of student's in environmental ethic in EIA course. An assessment was test three times in 3 weeks, included week 1, 8 and 15. Teaching Ethics content insertion environment, which is divided into five topics include honesty, responsibility, diligence, discipline, and achievement motivation shown in table 1.

Table 1 Environmental ethic assessment of students in EIA course

Environmental Ethic	Mean±SD			
	Time 1	Time 2	Time 3	Average
Honesty	2.91±0.20	2.96±0.21	2.99±0.23	2.95±0.17
Responsibility	3.19±0.23	3.25±0.27	3.31±0.38	3.25±0.12
Deligence	2.98±0.22	3.08±0.29	3.21±0.31	3.09±0.10
Discipline	3.05±0.31	3.12±0.36	3.25±0.38	3.14±0.17
Achievement motivation	3.00±0.49	3.06±0.40	3.46±0.39	3.17±0.25

The average environmental ethics are comparison using by self-assessment shown in figure 2. The environmental ethics evaluation of students has increased of all. Moreover, it is found that the achievement motivation is a topic that has increased the most.

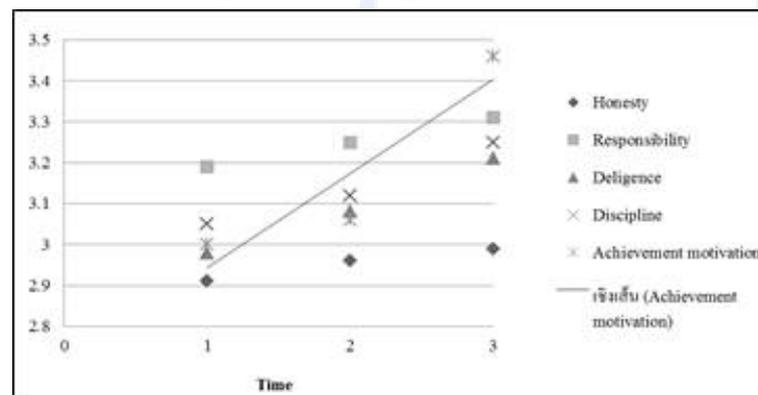


Figure 2 Comparison of average moral self-assessment

The processed of participatory learning. The learning plans are prepared by students. Course content consider by the course description. The rules and follow the rules of the course by student. Participate in the vote share, and plan activities in the evaluation and measurement. To management their own learning and was to engage students in the midterm exam and final exam.

The processed of learning by doing. Learning process for students to act with the activities assigned to student groups in the evaluation of environmental impact in the campus. The campus is divided into 3 parts including First, front from the main road to the road before the cafeteria, Second, from the street in front of the cafeteria, the cafeteria, the Faculty of Humanities and Social Sciences, Third, from the road front of the Faculty of Humanities and Social Sciences until the middle of the campus stadium. Assess in 4 tiers consist of physical resources, biological resources, Values for human use, and the quality of life.

The student experience was using by Students have taken an interest in a joint meeting to public hearing from the public and stakeholders. To review the draft environmental impact report on the project electricity Nava Nakorn Electricity Generating Company Limited, at Ptumtip room, Manhattan Hotel, Klong Luang district. Pathumthani.

The students presented the results of the EIA. Four tiers are physical resource, biological resources, human use values, and quality of life. To assess the progress each week, present for the individual and within the group will rotate to offer requires a unique original.

In creative Thinking, In addition, a student approaches and measures to prevent environmental problems occurring in the present and may occur in the future. Problem situations are from class discussion. In finally, prepared a summarizing report of the study and presented to the University for using as information management.

In table 2, was showing the student's knowledge in Environmental Impact Assessment. Comparison of knowledge before and after learning was found the knowledge higher after the learning increased statistical significantly at 0.5.

Table 2 The student's knowledge in Environmental Impact Assessment.

Sex	Mean±SD		t	p-value
	Before	After		
Male	14.7±0.9	17.5±0.6	-5.745	.001*
Female	14.0±2.9	16.6±1.7	-2.822	.010*
Total	14.2±2.5	16.8±1.5	-4.006	.001*

*Statistically significant at the level of .05

Conclusion

In this paper, we have shown that there are environmental ethic developments. Environmental ethic of the students found average self-assessment of students' environmental ethic both of group male and female is increased. Environmental ethic developments are most of the achievement motivation. For learning achievement development in the EIA course, It was found the student in general after learning was significantly higher than before at the statistic level of 0.5 In addition, it was found that the test results after learning of the male and female were increased, male more than female .

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*Implementations of Knowledge Management as a Strategy for Improving
Competitiveness in Higher Education Organization (Application research of Soft
Systems Methodology for higher education organization)*

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Abstract

In the current globalization era existence of organizations that exist both within the government and companies are required to always react to environmental changes and be able to answer the challenges faced. An organization's environment consists of various segments such as cultural, technologocial, educational, political, legal, natural resources, demography, social and economic development. Changes in the organization not only in companies but also on college organizations both private and government owned and run in evolutionary staged. Bureaucracy is sensitive to the knowledge base should be able to make an innovation. In answering the challenges of globalization today, the organization see that the elements of knowledge becomes important and called knowledge management. As a learning organization, the knowledge management becomes the determining factor of competitiveness and organizational change. One of the concepts developed in the knowledge management organization later to be known by knowing the three stages, namely: sensemaking, knowledge creation and decision making. To describe an organization that has a concept that's SECI knowledge creation (socialization, externalization, combination, internalization), which carried by Nonaka & Takeuchi (1995) became the most important to gauge how the organization will continue to grow and learn and have knowledge. Impact of changes to higher education particularly in Garut City-West Java-Indoneisa growing need of research that details how changes in the environment, competitiveness and innovation organizations were able to make higher education in Garut City into organizations that are knowledgeable, ready to compete to face the demands of industry and environments changes. In this study, the unit of analysis is UNIGA (Garut University) and STTG where the results give an idea that basically the two organizations have implemented knowledge management to stakeholders but the result is different (as seen from the leadership, faculty, administrative staff and students). The methodology used is Soft Systems Methodology (SSM). Soft systems thinking seeks to explore the 'mesy' problematic situatuons that arise in human activity. This interpretive approach is strongly influenced by Checkland (1999) and Checkland and Scholes (1990) have attempted to transform these ideas form system theory into practical methodology that is called Soft Systems Methodology (SSM). STTG and UNIGA and continually strive to make organizational learning and knowledge sharing trthrough a network of information and technology owned so that human resources were continuously innovative in improving organizational competitiveness.

Keywords: innovation, knowledge management, college

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A. Introduction

Entering the era of knowledge-based economy and globalization that is full of competition, the role of universities in building national competitiveness is vital. Welfare and progress of the nation is no longer determined by the abundance of natural resources, or the amount of labor available, but rather is determined by the productivity and creativity beings. Globalization spawned an increasingly tough competition in all sectors but it also opens the globalization of borders between countries. Unpreparedness to face global competition characterized by the competition in quality and efficiency can lead to lower self-esteem. In this research, the role of higher education also important to answer industrial needs, one of higher education located in Garut City-West Java, Indonesia. This city have a special characteristic in building higher education especially in using information technology and implementing of knowledge management. The city of Garut physical development through a phase of changes that began in the 1960s in which the physical development of the city of Garut is divided into three periods , the first period (1813-1920) developed a linear fashion. The second period (1920-1940) Garut city developing concentrically. The third period (1940-1960) Garut city development tends to follow the theory of multiple nuclei . Environment of an organization (company industry) is composed of a variety of segments such as segments of culture, technology, education, political, legal, natural resources, demographic, social and economic (Lubis & Huseini , 2009). There is a paradigm shift in the view that segment of tacit knowledge to the organizational explicit knowledge (Choo , 1998) in which knowledge management has inspired a shift in perspective that exist in organizations both governmental and corporate organizations

B. Knowledge Management and Knowledge Creation

The impact of the change is the creation of something that is new , one of the strategies that should be held so that the innovation is something new that have the unique characteristics and is able to improve the competitiveness of the organization and can contribute something new to replace the old rules and paradigms . " Innovation is a powerful force of human nature . Creater new business innovation , culture movement , and social institution and destroy , replaces , or leaves behind the old ones. Innovation seeds on the known and convert it into the new " (Gollin , 2008). In an organization that is based on the knowledge-based view (Spender, 1996; Nonaka and Takeuchi, 1995; Nonaka, 2007) emphasizes that organizations exist on two objectives , namely generation and application of knowledge (Mitchell, 2010). Competence of the generation and applied knowledgeable organization based on one of the main sources of competitive advantage of the firm (Leonard - Barton , 1990; Nonaka , 1994; Spender , 1996; Zollo , Winter, 2002). Knowing the views of the Organization (Choo; 1998) discusses the use of the information three starts making sense (sense making) , the creation of knowledge (knowledge creation) and decision making (decision making) which is in fact is a process which is associated with a very strong and by analyzing how these three activities each provide energy to one another as well as the holistic view of an organization's information is displayed. According to Nonaka & Takeuchi (1995) there are four modes of knowledge changes from tacit knowledge to tacit knowledge through a process of socialization , from tacit knowledge to explicit knowledge through externalization, through a combination of explicit knowledge and from explicit knowledge to explicit knowledge through internalization .

Gilbert (2001, 24) explains that knowledge is the whole part of the existing knowledge and skills of individuals who are used to solve the problem and Polanyi (1967) divides knowledge into two areas , namely tacit and explicit.

C. Research Methodology used Soft System Methodology (SSM)

The method used in this study is divided into several stages , such as: 1) the object in this research: there are two universities as a locus of research such as : UNIGA (Garut University) and STTG (Garut School of Technology), 2) the sampling method is a way to distinguish the first , groups of policy makers and decision in this regard is the leader. In this study only took two higher education (Diploma level and undergraduate level) and this is in accordance with the selection criteria of the sample (Sekaran , 1998) , the academic community (faculty and administrative staff) are considered quite have a role in their own chapters. For informants in each group selected divided into two steps, such as: 1) for a group of decision makers and policy taken the leadership level (Director / Rector and Head of Department) and 2) For the academic community is taken by a proportional random techniques (Lecturer and Administration Staff).

Soft systems thinking seeks to explore the ‘mesy’ problematic situations that arise in human activity. This interpretive approach is strongly influenced by Checkland (1999) and Checkland and Scholes (1990) have attempted to transform these ideas form system theory into practical methodology that is called Soft Systems Methodology (SSM). Checkland’s premise is that systems analysts need to apply their craft to problems of complexity that are not well defined, and that SSM attempts to understand the wicked and fuzzy world complex organizations. This achieved with the core paradigm of learning (Checkland, 1999: p. 258).

D) Method Of Analysis Data

Method approach is used in this research used Soft Systems Methodolgy Method (SSM) from (Checkland , 2006). Data collection methods used in this study were interview, questionnaires and the data obtained from the relevant agencies. The data collection techniques implemented by way: (1) Interview : in-depth interviews using a structured interview guide was not particularly group leaders; (2) Questionnaires : the spread to a number of informants in some groups (led in Higher of Education, Lecturer and Administrative Staff) . Questionnaire distributed in the form constructor (strongly agree , agree , neutral , somewhat disagree , strongly disagree) to explore issues of innovation and knowledge management.

Data analysis method used in this research is qualitative data analysis conducted in accordance with the type of data studied. The data have been grouped to associate with one another and interpreted by using the Soft Systems Methodology (SSM) and CATWOE approach (Clients, Actors, Transformation, Weltanschauung or World View, Owners and Environment) in analyzing the application of the concept of knowledge management in higher education organizations in Garut City-West Java-Indonesia. Soft Systems Methodology (SSM) can be separated from its environment by a boundary or limit. Hard and soft system is often interchanged with the system usually refers to quantitative and qualitative. Soft system generally refers to a conceptual and contextual approaches that tend to be more realistic, pluralistic, and holistic rather than drive system (Checkland, 1990). SSM is more humanistic approach or a more appropriate approach to social problems. There are 7 stages in the

SSM methodology: 1) Phase One and Two - defining the situation, 2) Stage Three : the basic definitions of the relevant system (Root definition of Relevant systems), 3) Stage Four : Developing the Model, 4) Stage five : Compare models and the real world, 5) Stage six : Make intervention (intervention), 6). The seventh stage : Measures to improve the situation.

E. Data Analysis

Based on data obtained from the college organization of UNIGA and STTG, the questionnaire given to the three elements , namely : Lectures (10 respondent), Administrative Staff (10 respondents) and students (20 respondents). For the level of the leadership done with the interviewed . The question posed in the questionnaire is divided into two aspects, namely (a) Innovations and organizations as well as (b) Knowledge Management.

Figure 1: Rich Picture of UNIGA and STTG

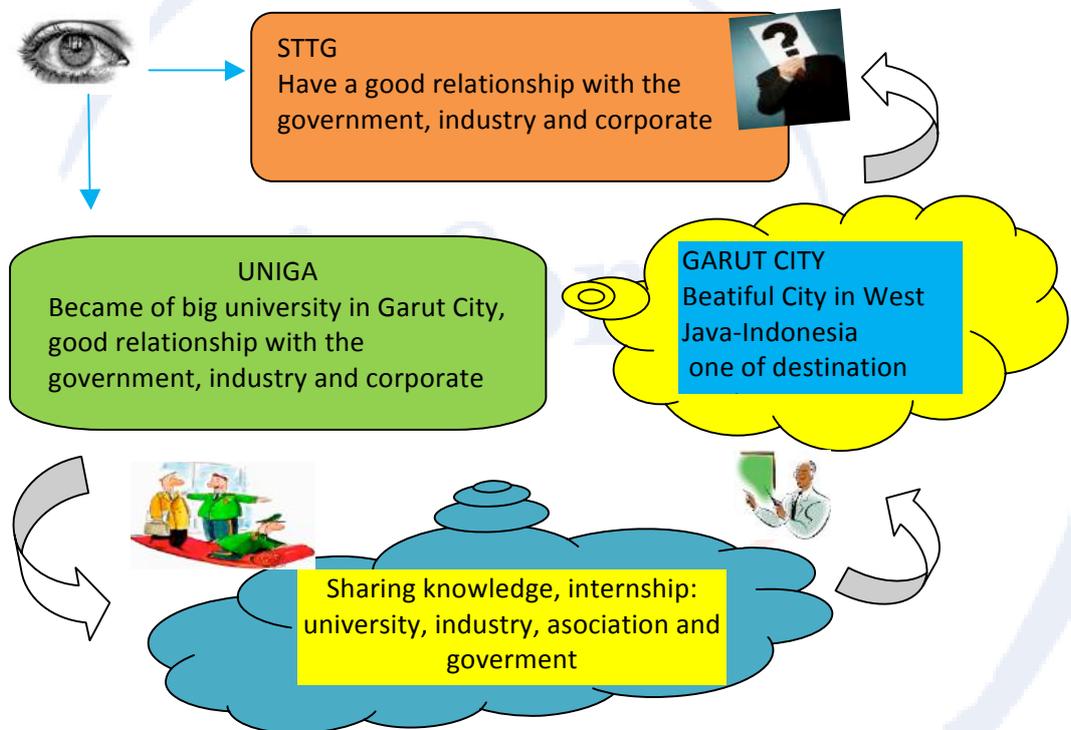


Table 1 Root Definition for UNIGA and STTG

Root Definition	CATWOE
UNIGA (Garut University)	Customer: industry, corporate, government Actors: Rector, Dean of Faculty and Head of Department Transformation: Knowledge, processes and technology together with details implementations of knowledge information technology on teaching and learning process. Weltanschauung: To assess the implementations of knowledge management and knowledge creation in teaching and learning process. Owner: Rector, Dean of Faculty and Head of Department Environment: Competitive, teaching and learning process, quality of facilities, community, industrial and corporate needs.
STTG (School of Garut Technology)	Customer: industry, corporate, government Actors: Rector, Dean of Faculty and Head of Department Transformation: Knowledge, processes and technology together with details implementations of knowledge information technology on teaching and learning process. Weltanschauung: To assess the implementations of knowledge management and knowledge creation in teaching and learning process. Owner: Rector, Dean of Faculty and Head of Department Environment: Competitive, leadership, teaching and learning process, quality of facilities, community, industrial and corporate needs

From root definition and data analysis there are several changes and activity (Tabel 2 and Tabel 3).

Table 2: Comparison of problem application the concept in UNIGA

No	Conceptual Model Activity	Existing Conditions		Actor	Changes and Activity
		Yes	No		
1	Implementations of information technology	√		Rector, Dean of Faculty and Head of Department, Lecturer and Administration Staff	a. Intranet and e-learning activity should be improved. b. Supporting infrastructure PBM further optimized in accordance with the standards of teaching and learning activity.
2	Leadership	√		Rector, Dean of Faculty and Head of Department	Leadership style faces changes of globalization and information technology.
3	Teaching and learning process	√		Head of Department, Lecturer, Administration Staff and the Students	a. Sustainability of training and development for academic staff (lecturer and administration staff); b. Implementation of knowledge management and knowledge creation has done.

					<p>Cooperation with industry and other universities further enhanced;</p> <p>c. Academic culture needs to be improved;</p> <p>d. Tribute to others by giving schools the opportunity , training , seminars for staff who perform well;</p> <p>e. Sanction for low -performing administration staff.</p>
4	Role of Administration Staff implementing service excellent for academic purposes	√		Adminsitration Staff, Customer and Student	<p>a. Standard operation procedures (SOP) for role of administration staff doing service excellent to be improved and evaluation.</p> <p>b. Administrative staff serving the academic community better , teachers can improve the quality and competence;</p> <p>c. Culture of organizations evaluated periodically.</p>
5	Implementations of policy leader	√		Rector, Dean of Faculty and Head of Department	<p>a. Policy leader expected to improve the performance of the administrative staff,, faculty and students studying comfort.</p> <p>b. Inviting users graduates such as: government , companies and industries.</p>

Tabel 3: Comparison of problem application the concept in STTG

No	Conceptual Model Activity	Existing Conditions		Actor	Changes and Activity
		Yes	No		
1	Implementations of information technology	√		Rector, Dean of Faculty and Head of Department, Lecturer and Administration Staff	<p>c. Intranet and e-learning activity should be improved.</p> <p>d. Supporting infrastructure PBM further optimized in accordance with the standards of teaching and learning activity.</p>
2	Leadership	√		Rector, Dean of Faculty and Head of Department	<p>a. Leadership style faces changes of globalization and information technology;</p> <p>b. Leaders look that human resources is becoming a valuable asset on the future organization.</p>

3	Teaching and learning process	√		Head of Department, Lecturer, Administration Staff and the Students	<ul style="list-style-type: none"> a. Sustainability of training and development for academic staff (lecturer and administration staff); b. Implementation of knowledge management and knowledge creation has done; c. Cooperation with industry and other universities further enhanced; d. Academic culture needs to be improved; e. Tribute to others by giving schools the opportunity , training , seminars for staff who perform well; f. In contrast to the existing low - performing staff sanction .
4	Role of Administration Staff implementing service excellent for academic purposes	√		Adminsitration Staff, Customer and Student	<ul style="list-style-type: none"> a. Standard operation procedures (SOP) for role of administration staff doing service excellent to be improved and evaluation. b. Administrative staff serving the academic community better , teachers can improve the quality and competence; c. Culture of organization evaluated.
5	Implementations of policy leader	√		Rector, Dean of Faculty and Head of Department	<ul style="list-style-type: none"> a. Policy leader expected to improve the performance of the administrative staff,, faculty and students studying comfort; b. Inviting users graduates such as: government , companies and industries; c. Knowledge management and knowledge sharing has been implemented in view of the unity of the leadership of the organization in STTG; d. The existence of values, beliefs and the courage to be invested for the entire organization by using language that is easily accepted or informally.

E. CONCLUSION

- a. Models of knowledge management in accordance with UNIGA is pattern information to be provided through the top to flow down from the party leadership (management and organization) then lecturer and administrative staff to manage the information held for the benefit and advancement UNIGA.
- b. The policy leader and work culture in UNIGA has implemented well.
- c. While in STTG models that have been done have reflected that denganbaik implemented knowledge management and has been in STTG that knowledge is always divided, both for administrative staff and lecturer.
- d. STTG leadership roles within the organization STTG looking forward to contribute to a dynamic academic environment so that all academic organ that is in them feel cared for and comfortable to undergo sharing knowledge and do not see this as a threat conditions .
- e. STTG saw that the city was made to build a network of knowledge sharing, when there is conflict management, the solution is to make the organizational restructuring for better answer.

F. SUGGESTIONS

- a. Understanding of knowledge management in organizations both in UNIGA and STTG to be developed as part of a dynamic academic culture.
- b. Stakeholders both within and outside the organization UNIGA and STTG should be able to work together to realize the vision and mission towards Garut City.
- c. Innovation and networking between the parties did UNIGA and STTG with the industry and colleges as well as absolute government developed and improving in higher education.

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Adoption of a Personal Learning Environment & Network (PLE&N) to Support Peer-Based Lifelong Learning

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0169

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Abstract

The 21st century is the knowledge and digital era. The issues of changing conditions and information overload challenge people's abilities to learn. Moreover learning is becoming more learner-centric and network-based, and the traditional way of learning may not be effective enough to keep up with the pace of emerging knowledge. Learners need to develop their personal learning systems (personal learning environment & network, PLE&N in short) to integrate and foster learning activities. This paper discusses the use of a virtual PLE&N to support learning and describes its benefits.

Learners have different learning competencies, preferences and objectives. To respond to this diversity, learning should be personalised. On the other hand, there is an increasing trend that people learn from trusted networks, as knowledge is distributed across connections. To meet the contemporary challenges and learning trends, a PLE&N is established. Changes in technology provide a variety of tools for people to develop their own learning systems. Many of these tools are Web 2.0 tools, including discussion forums, file/video sharing, RSS feeds and social networks. Learners can also use these tools to build up networks for co-learning and locating expertise. In general, a PLE&N serves as a platform fostering self-regulated and network-based learning, resulting in problem solving, collaboration and innovation.

This paper describes a case study of how a group of students establishes and uses a PLE&N to facilitate learning in a Hong Kong university. It is hoped that insights provided would be helpful for teachers and students to adopt technology-enhanced learning to meet the contemporary challenges.

Introduction

In the knowledge and digital era, people are facing many challenges and changing their learning trends. These challenges include unstructured and fast-changing conditions, information overload, and advancements in technology. Situations that people have to tackle are often novel and they have to learn constantly and to search for information to support decision-makings; the amount of information available is huge, making it difficult and time-consuming to locate the right information and digest it. Changes in technology also require people to update their knowledge constantly. On the other hand, learning is becoming more learner-centric and network-based (Tsui & Cheong, 2013). Learners have different learning competencies, preferences and objectives. To respond to this diversity, learning needs to be personalised. Moreover, there is an increasing trend that people learn from trusted networks, as knowledge is distributed across connections and networks (Dabbagh & Kitsantas, 2012a; Leone, 2013).

The traditional ways of learning, including attending classes and going to libraries, have limitations in meeting the contemporary challenges and learning trends, as they tend to be restrictive in geography and require more time. They may not be efficient enough to keep up with the pace of emerging knowledge. Learners need to develop their personal learning systems to integrate and foster learning activities. This paper discusses the use of PLE&N to support learning and its benefits. A literature review on personal knowledge management and personal learning environment & network (PLE&N) is first given, followed by an example illustrating how a PLE&N is used to support learning and teaching in The Hong Kong Polytechnic University (PolyU), and a discussion on factors affecting the continued use of a PLE&N. The research framework is described in the following section. The research work is on-going, and the data collection and analysis are expected to be completed by middle of next year.

Literature Review

Personal Knowledge Management

The development of personal knowledge management (PKM) has led to the development of PLE&N. Learning changes from behaviourism, in which learning occurs through controlled stimulus or response conditioning, to constructivism, in which knowledge is constructed through the dynamic interaction of new information and existing knowledge, and finally to connectivism, in which learning occurs through social contact. Knowledge resides in a network and one needs to develop and expand a network to leverage on the collective wisdom, and to do so on a continuing basis. Hence to give a literature review of PLE&N, it is more appropriate to first give a review on PKM.

A number of definitions regarding PKM exist and there is no universally agreed definition. People have also been practicing activities related to PKM without articulating the term (Cheong & Tsui, 2010). Nevertheless, the numerous definitions of PKM can be categorized into skill-centric and technology-centric.

Regarding the skill-centric definition, Avery, Brooks, Brown, Dorsey and O'Conne (2001, p.4) defined PKM as personal self-awareness – “an understanding of how much they know, how to access the things they know, strategies for acquiring new

knowledge and strategies for accessing new information as needed". On the other hand, Barth (2004, p.356) gave a technology-centric definition, and defined PKM as "a range of relatively simple and inexpensive techniques and tools that anyone can use to acquire, create and share knowledge, extend personal networks and collaborate with colleagues". The technology-centric definition given by Barth (2004) suits the context of this paper.

Cheong and Tsui (2011) summarised the trends of PKM over a 12-year period. There are a few focuses among PKM studies, and two most relevant to this research are (i) technologies and tools, and (ii) learning and networks. Technologies are facilitators for undertaking PKM. Selecting and using tools appropriately is essential for an effective PKM (Agnihotri & Troutt, 2009; Barth, 2004). Advancement in technologies has given rise to Web 2.0 technologies that are online applications or platforms where users can interact and collaborate with each other. Users of Web 2.0 technologies are also contributors of content. Examples of Web 2.0 include blogs, discussion forums, file/video sharing, open office, RSS feeds, social networks and wikis. They are very popular for personal use. It is also suggested that Web 2.0 technologies have created new opportunities in learning and teaching (Taraghi, 2012). The rise of mobile devices is also another key compelling force, where learners use mobile devices in different contexts. In fact, personal mobile devices allow users to have access to learning resources and applications at any time and place, and hence support self-regulated learning (Taraghi, 2012). Self-regulated learning is the ability to be fully aware of the need for further learning and to accomplish learning proactively (Leone, 2013).

The key emphasis of learning and networks lies on connecting with the right people, rather than getting the right information (Jarche, 2010). People often have to tackle new problems and they need the right information for decision-making. However, the issue of information overload makes it difficult and time-consuming to locate and digest the right information. Occasionally the stream of problems that people need to tackle is so wide that it is almost impossible for them to learn everything. Hence it is strongly recommended that people connect with subject matter experts and get advice from them. Jarche (2010) is in favour of this argument, and he suggests that the value of knowledge is enlarged when it is shared among communities. People co-learn and locate expertise in the communities.

Personal Learning Environment & Network

Personal learning environment & network is a learner-centric platform fostering self-regulated and network-based learning (Dabbagh & Kitsantas, 2012a; Leone, 2013). Another similar definition of a personal learning environment is the "combination of different tiny applications" which is "within a framework and with strong relationship to learning aspects" (Dabbagh & Kitsantas, 2012b; Taraghi, 2012). PLE&N is a generic term and a concept instead of a specific software package. As such, many different variants of PLE&N systems, like personal knowledge environment (Dabbagh & Kitsantas, 2012a; Leone, 2012) and personal knowledge networks (Caldwell, 2002; Mohamed, 2012), exist in studies of PLE&N.

One of the key focuses of PLE&N is the use of technologies. Advancements in technology provide a variety of tools for people to develop their own learning systems. Many of these tools include Web 2.0 tools, which are pervasive, ubiquitous and

bottom-up. Learners have the freedom and responsibilities to decide and select which tools best fit their learning purposes. They can also use tools to build up networks for co-learning and locating expertise.

Use of a PLE&N to Support Learning and Teaching at PolyU

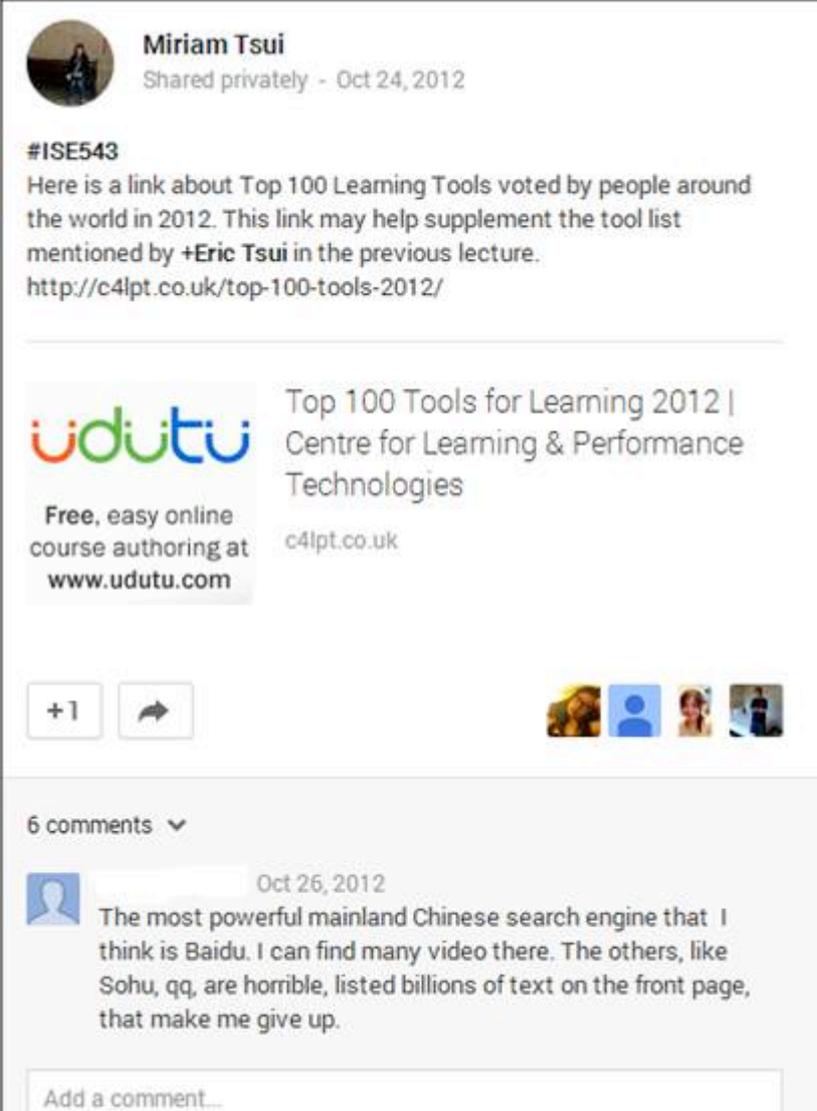
PLE&N has been used to support learning and teaching at The Hong Kong Polytechnic University (PolyU). Two of the tools that have been used are RSS feeds and social networking software.

Regarding the use of RSS feeds, the teacher has to first identify quality sources of information related to the subject and to incorporate these sources of information into a RSS reader. The sources of information are exported using the RSS reader and shared with students. Students can then import the file and start getting feeds and reading the information. When students identify good sources for information, they are welcomed to recommend the sources for the teachers. The sources of information are very useful for students in getting them to read more apart from the formal teaching materials, and to help complete assignments and projects, as they usually require a lot of good quality references.

Regarding the use of social networking software, students are asked to create an account on a social networking site, and then their accounts are grouped. This is being done for each of the classes in which the PLE&N is to be deployed. Once the PLE&N has been deployed, anyone who belongs to the group can read and post, as well as freely discuss any articles that are tagged in the PLE&N. For example, a student posted link about learning tools after hearing the lecturer mentioning the list of learning tools in class (**Error! Reference source not found.**). Discussions are followed about the geographical effects on the learning tools. Students can also post supplementary information about assignments and other insightful materials.

To ensure sustainability of the PLE&N environment, the tools chosen to set up the PLE&N are free, easy to adopt and easy to use. They also provide settings to allow personalization. To help ensure the quality of the content created in the PLE&N, teachers usually have to initiate the sources of information and monitor the discussions among students. These are done to ensure academic integrity and the quality of the learning material inside the PLE&N. In order to encourage participation in the PLE&N, teachers usually give rewards to students who participate actively. For example, one teacher has allocated 10% of the total score of a subject to student's participation in the PLE&N.

After one semester, students have the freedom to decide if they would continue to use the PLE&N or stop using it. It is found that, after the class ended, some students still participate actively in the PLE&N, while some participate occasionally and some discontinue very soon. This phenomenon gives rise to studying the interesting question of why people adopt learning tools for varying periods of time.



Miriam Tsui
Shared privately - Oct 24, 2012

#ISE543
Here is a link about Top 100 Learning Tools voted by people around the world in 2012. This link may help supplement the tool list mentioned by +Eric Tsui in the previous lecture.
<http://c4lpt.co.uk/top-100-tools-2012/>

udutu
Free, easy online course authoring at www.udutu.com

Top 100 Tools for Learning 2012 |
Centre for Learning & Performance Technologies
c4lpt.co.uk

+1 

6 comments ▾

 Oct 26, 2012
The most powerful mainland Chinese search engine that I think is Baidu. I can find many video there. The others, like Sohu, qq, are horrible, listed billions of text on the front page, that make me give up.

Add a comment...

Figure 1 Use of Social Networking Site to Support Teaching and Learning

The Research Framework

After an intensive review on adoption and usage literature (Ajzen, 1991; Bhattacharjee, 2001; Davis, 1989; Fishbein & Ajzen, 1975; Karahanna, Straub, & Chervany, 1999; Lippert & Forman, 2005; Moore & Benbasat, 1991; Ouellette & Wood, 1998; Parthasarathy & Bhattacharjee, 1998; Rogers, 1995; Thompson, Higgins, & Howell, 1991; Thompson, Higgins, & Howell, 1994; Venkatesh & Brown, 2001; Venkatesh & Davis, 2000; Venkatesh, Morris, Davis, & Davis, 2003), it is found that five factors affect the continued use of an information system. These five factors are perceived usefulness, compatibility, social influence, personal affect and past use. The way that these five factors affect continued use is shown in Figure 2. Except for the dual effect of past use, all other constructs affect continued use through the intention to continued use. Each of the constructs is discussed as follows,

- **Perceived usefulness**
Perceived usefulness is a frequently mentioned construct in studies on information system adoption. It appears in the technology acceptance model (Davis, 1989). It measures the extent that a person believes using a system would be beneficial.

The theory of belief updating suggests that prior belief and evaluation is constantly updated by succeeding events and experience (Kim & Malhotra, 2005). Hence when users gain experience with the information system, the perceived usefulness regarding the system will be updated.

- **Compatibility**
Compatibility appears in the innovation diffusion theory (Moore & Benbasat, 1991). It measures the extent that an information system is perceived as being consistent with existing needs and past experiences of the users. It is found to be a significant predictor for continued use (Karahanna et al., 1999).
- **Social influence**
Social influence appears in different adoption models and theories in the form of different names, including the subjective norm in the technology acceptance model (Davis, 1989), social factors in the model of personal computer utilization (Thompson et al., 1991) and image in the innovation diffusion theory (Moore & Benbasat, 1991). It measures an individual's perception that people who are important to him/her think if he/she should use certain information system.
- **Personal affect**
Similar to the construct of social influence, personal affect appears as affect towards use in the model of personal computer utilization (Thompson et al., 1991) and affect in the social cognitive theory (Compeau & Higgins, 1995). It measures an individual's feelings of joy, pleasure or liking towards a particular act.
- **Past use**
Experience with information system use is commonly regarded as a moderator in adoption studies. There are studies, however, suggesting that there is a positive effect of past use on future use (Jasperson, Carter, & Zmud, 2005; Venkatesh & Davis, 2000; Venkatesh et al., 2003). The self-perception theory states that people observe their own behaviour as an outsider (Kim & Malhotra, 2005). Hence, when the usage of an information system increases, the usage would affect a user's intention or evaluation for future use.

Past use affects continued use in two ways: a direct effect and an indirect effect through intention to continued use (Figure 2). The direct effect occurs when the contexts of usage are stable and the usage becomes habitual. The self-perception theory states that people do not evaluate their routine behaviour until they are asked to do so (Kim & Malhotra, 2005). Conscious awareness is not involved when performing habitual acts, hence resulting in a direct effect. The indirect effect takes place when the contexts of usage are unstable, and do not trigger or induce habitual acts. Conscious awareness is

involved when performing the act. The effect of past use on continued use is mediated through intention in the indirect effect situation.

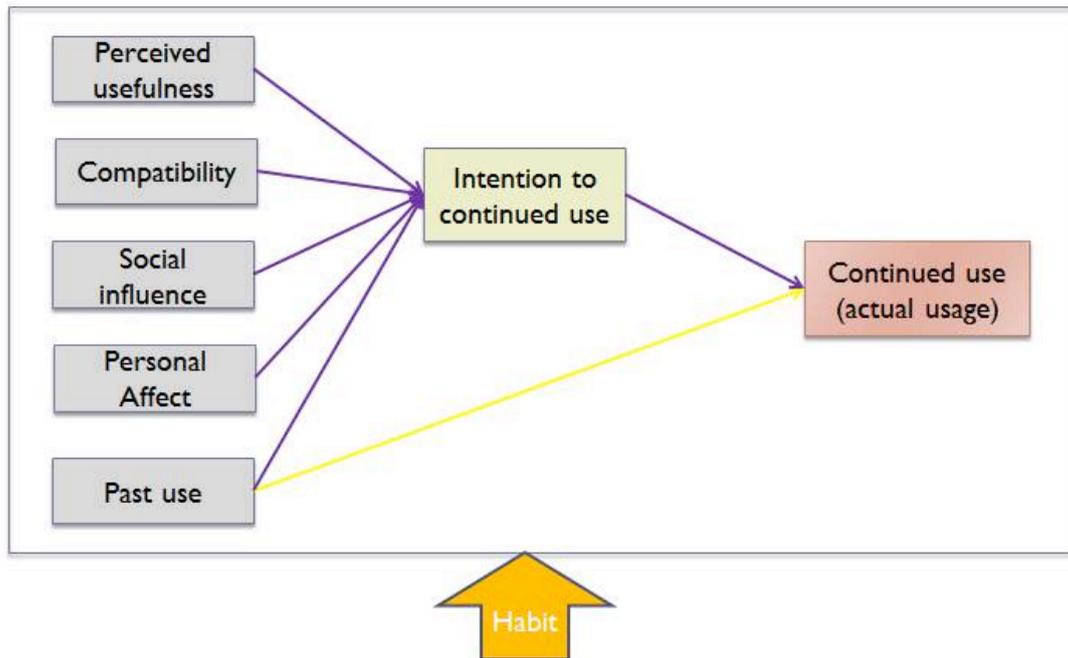


Figure 2 Research Framework

Conclusion

This paper outlines the use of a PLE&N to support peer-based lifelong learning – the contemporary challenges, as well as the learner-centric and network-based learning trends. The case at PolyU has clearly demonstrated the feasibility of using Web 2.0 technologies to establish a PLE&N, and the ways it can be used to support teaching and learning. For such usage to be beneficial and sustainable, appropriate measures need to be established to ensure the quality of adopted tools, the information sources and the content contributions. Finally a research framework incorporating several potential factors that would affect the continued use of an information system has also been presented.

Future Work

The authors will collect data by conducting a survey among students, including undergraduates, postgraduates and graduates, of The Hong Kong Polytechnic University. At this moment, the research framework has been proposed and the questionnaires have also been drafted. The authors will proceed with the pilot test of the questionnaire, launch of the filed survey, data analysis and preparation of future publications. It is expected that all work will be done by the middle of next year. The authors look forward to sharing the results with others in subsequent publications.

Acknowledgement

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The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is surrounded by several thick, curved brushstrokes in shades of light blue and light red, creating a circular, artistic frame around the text.

iafor

*Behavioral Relationship between Sexes and Sexual Relations of Male Students in
Silpakorn University, Thailand*

Jittapon Chumkate

Silpakorn University, Thailand

0234

The Asian Conference on Society, Education and Technology 2013

Official Conference Proceedings 2013

Abstract

This study is qualitative research, which aimed to make an understanding on behavioral relationship between sexes and activities related to sexual relations of male students, as well as to reflect how issues caused by their behavior was. The researcher applied ethnomethodology approach of Michael Angrosino by doing participant observation and in-depth interview to 9 male students at 3rd to 4th year in bachelor degree who were studying in Silpakorn University which was located in Petchaburi province, Thailand. The researcher used descriptive analysis in order to interpret data and make a conclusion. Results showed that in case of same-sex relationships, it would be rather friendships because of male gender which meant they were not infatuated with the same sex but they chose their friends by consistency of thought, preference, and attitude. The relationship between sexes and sexual relations could be easily happened because there were noticeable stimulus which supported the behavior. These permitted male students to connect with satisfied female and eventually cause sexual relations. It was found that most relations were primarily created by female. Most male students used to have sexual relations with female in dormitory or in hotel and did not use a condom even though they had never met with each other before. Male students who already had lover, it was not a problem for them because of distance. They saw that it was personal feeling which could not be restrained, and became a challenge thing to have someone else while their lover was not able to know. This sexual interrelation behavior was considered “right” to the students because it was personal issue, it did not cause any problem, and saw that other male students did so.

Keywords: Behavioral relationship, sexual relations, male students

Introduction

Teenage is a stage which curiosity is enthusiastically expressed. It is the period of growth, both physically and mentally, therefore is the period of learning and adjustment in every dimension, which cause teenagers and their parents to face some problems from the mentioned changes. Teenagers also have to be under pressure of expectations and the transition from a child who used to rely on their parents to an adult, which cause teenagers to have to adjust their behavior, emotions and social lives by creating an identity, attitude, and values they see fit for themselves. Friendship is one of the most important things for teenagers, and when combined with physical changes, sexual development and hormonal changes, can create sexual drive, curiosity and interest in the opposite sex, which put teenagers in a stage where they are ready for intercourse (Suchart, and Wanee Somprayool, 1998).

The transition from a teenager who relies on adults to the age where they need to be responsible and live life by themselves, together with social value in the present days, cause an impact on the teenagers' expression, especially on their sexual behavior. Today, the society focuses on economic and technological development, which contributes to fast information sharing, absorption of thoughts, values, and behavioral imitation. Materialism makes the society become comfort-oriented and its values changes according to present social and familial conditions. As a result, parents need to earn more to sufficiently provide for their families; therefore they have fewer chances to closely take care of their children. This allows teenagers today more freedom and higher possibilities to bond with someone than in the past. Also, situations where they are alone together, which can cause natural sexual tension, can occur more easily. Technological advancement and the nature of teenagers: curiosity, the urge to try new things and behave in a different way, including the need to be accepted among friends rather than their parents; can formulate the idea of wanting to break rules or warnings set by adults, particularly the issue of sexual relations before an appropriate age, which is the biggest concern among parents and adults. Therefore, teenager is the group of people who react to and are influenced by social and technological changes most rapidly and obviously (Terdsak Dejkong, 2001).

Sexual behavior, therefore, is related to thoughts and beliefs about sexual relations among teenagers and adolescents. Because of the social and economic changes at present, teenagers tend to have diversity in thoughts, beliefs and values, e.g. having an intercourse with their partner or someone else even though they already have a lover, intending to have an intercourse with an opposite sex, having sex without protection with a familiar opposite sex (Jirangkool Natrangsee, 2006). Part of these sexual behaviors comes from the difference in sexual value perception in each person, depending on the environment. When facing social changes, how they are raised in their family, school, and the society, together with the thoughts, beliefs and values on sexes of these teenagers can be a big influence on their sexual behavior. Furthermore, the influences from the media such as television, movies and internet can stimulate teenagers to start having sex at young age. Consequently, there would be impacts on

both the teenagers themselves and their families, e.g. school-age pregnancy, abortion, child abandonment, sexual transmitted diseases, bad grades, shame, low self-esteem, etc., which might cause depression or heartbrokenness and lead to teenagers hurting themselves, committing suicide, or sexual violence.

University students are considered to be in an educational environment, as they are in higher education institutions. However, all university students are in their teen years and at present, social changes, values and western ways of thinking cause the behavior of today's students to be different from students in former time. Therefore, the researchers aim present occurrences on behavioral relationship between sexes, including activities which lead to sexual relations of male students in the Faculty of Management Science, Silpakorn University who stay in a dormitory, both inside and outside the of the university. This research can be considered as an echo of teenagers' opinion, for a better understanding of behavior pattern, attitude, and problems that occur.

Research Boundary

The researchers designed and divided research boundary into different dimensions, as follows:

1. Demographic: information is gained from interviewing male students in the Faculty of Management Science, Silpakorn University.
2. Geographic: Faculty of Management Science, Silpakorn University, Phetchaburi IT Campus, Cha-Am, Phetchaburi.
3. Time: the researchers started doing field survey to collect data to analyze and make a conclusion from December 2012 to January 2013, which is two months altogether.

Research Methodology

As qualitative research requires in-depth data to show actual occurrences and issues, the researchers choose to apply ethnomethodology approach by Michael Angrosino (2007) as a methodology in the research which focuses on a group of people in order to try to understand their specific behavior, which is meaningful and worthy, which occurs under a boundary of time and place (Bruce Curtis and Cate Curtis, 2011: 80). The researchers applies the techniques of informants observation and in-depth interview with junior and senior male students in the Faculty of Management Science, Silpakorn University, by getting to know them to develop trust so as to obtain the most honest data. The researchers have chosen the informants at random with the snowball technique. After obtaining enough information, the data is then analyzed by a descriptive analysis to generate results. In addition, the researchers have also performed literature review of related theories from text books and papers to verify and support the results.

Results

After the researchers have developed familiarity with a group of male students and have collected data by observation and interview, the findings can be categorized into different dimensions as follows:

1. Personal information and family background

From the interview, the researchers have found that most male students come from a moderate to a fairly well-off family that live away from the university, which are Bangkok, Nonthaburi, Ratchaburi, and Nakhon Pathom. Most of the students' parents live together; only a few are separated, and most of them are business owners. As for the students' spending behavior, they get approximately 4,000 – 8,000 Baht per month. During a semester, parents would take care of all expenses by giving them cash or making a deposit through bank account. Most expenses involve food, cloths, tools and equipment, including alcohol in pubs or bars. Students usually do not have savings because they think they are financially supported from their families. However, these male students do not have the behavior of borrowing money from their friends, and have a middling grade point average.

2. Dwelling

Students need to stay at dormitories, as travelling back and forth from their home is a long distance and takes a long time. Many choose a private dormitory situated at the back of the university if their family is quite well-off, as they think it is more convenient to go in or out of the dormitory to do their personal business, there is air conditioning and more accommodations than a dormitories in the university. Moreover, they can bring friends to their room, male or female. At the same time, some of the students who stay at a dormitory inside the university might sometimes stay over at a friend's room in a private dormitory outside. The reason is because the ones in the university has an opening and closing time, and the caretakers are very strict, which makes it inconvenient for them to hang out with their friends. As for going home, students take a private van services at the back of the university, but it is found that male students do not go home very often. Most of them go home not more than 1-2 times a month. They explained they do not feel the need to go home every week; they feel bored and there are not a lot of activities to do. They would rather stay at the dormitories to see their friends, hang out, or do their assignments.

3. Specific features and behavior with friends of the same sex

From the interview and observation, informants are male students in their junior and senior year, at the age of 20-23. Everyone's gender is male. They want to see and have a relationship with the opposite sex. Most of them have a girlfriend who is not in the same university. Some of them have never had a sexual experience with their partner before. The students tend to try to befriend other male students in the same year with the same gender, character, thoughts and interests. In the classroom, they

tend to sit together in the middle or at the back of the room and chat, make loud noises, play on their phones, or doze off because they did not get enough sleep; which creates a negative image on the whole group. After school, they usually go back to their dormitories together to chat and exchange their opinions on random topics such as good looking girls they have seen, football news, cars, hot news issues, etc. Nevertheless, it is found that most students do not watch pornography, but tend to discuss about sexual relations with girls or exciting direct sexual experiences to keep the talk interesting and fun. In addition, they tend to go out at night to eat or go to pubs or bars at the back of the university to meet friends or ask a close female friends to come and have a drink with them, and usually stays until 2.00-3.00 am before they separate and go back to their dormitories.

4. Relationship with the opposite sex

The informants revealed about their relationship with the opposite sex that mostly, the female tends to be the first to start the interaction, though a friend of the male student. Then, they would find an opportunity to exchange phone numbers or social network ID. A meeting place is usually a café or pubs outside the university. Most of the female who come to befriend them are students in the same faculty who they knew, are in the same year or are younger: a freshman to a junior. Things that girls find attractive are their characters, how they talk or their talents such as playing an instrument, football, acrobatic dancing, etc. rather than their looks or their financial status. Both parties usually meet during well-known student activities in the university such as an annual music competition or a department activity. After that, they would first talk on social network media, and then when they have become more familiar with each other, they would start talking on the phone occasionally. Male students who have a feeling for one of the opposite sex will have a change in their behavior; they often excuse themselves from their group of friends to go on a date with the girl to have a meal, watch a movie, go shopping at a department store, or just go out. However, if they go to a pub or a bar, both parties usually invite their friends along for a more reveling atmosphere.

5. Initiation of sexual relations

Students explained that after the male students have known a girl for only a period of time, which is from a day up to two weeks, they would start having sex. The first night of their sexual relations is mostly the night the male students ask a girl out for a drink late at night, then they would separate from their friends to take the girl back to their dormitory. If the pub is quite far from the university, they would rent a hotel, and the male party will pay the fee, even though the female party is a stranger who they are not familiar with. It is found that there are only a few who use condoms every time they have an intercourse to prevent pregnancy and sexual transmitted diseases. Most of them think they get more pleasure and excitement not using condoms. In some situations, they did not carry or ran out of one, so they had to have sex without

protections. However, they do not worry about sexual transmitted diseases or pregnancy, as they think both parties are students, so there should not be a problem.

6. Ending the relationship

After the sexual activity is over, they would spend a night together, and then the next day they would go their separate ways to do personal businesses or go to classes. It is found that some partners still stay in consistent contact with each other and engage in intercourses time and again. Nevertheless, most male parties decide to end the relationship after the first time because they do not want things to escalate. They would not answer their phones and not reply to online messages. If they do, they would claim to be busy, be in a class, or have a bad phone signal. Should they come across the girl in the university, they would pretend not to see them. In case the female party is in the same department or the same year, in classes, they will try to sit away from the girl to avoid conversations and the observation from classmates. The male students will continue doing these behaviors until the female parties sense the signs of them breaking off. The girls whom the male students had intercourse with tend not to demand or react, fearing that their friends will find out and they will be gossiped about. Many do not care, as they do not stick to only one man. Regardless, it is found that throughout all the university years, male students have been through this kind of experience for more than 1-2 times.

7. Opinion on the behavior

When the researchers ask of their opinion on their sexual behaviors, the male students say they think it is a personal issue and is a normal behavior of today's teenagers. They think they did not do anything wrong and did not cause others any troubles. Also, both the male and female parties are pleased with each other and the sexual relationship is consensual, so there is no problem about petition filing or press charging. They also view it as a way to release their emotions and feelings to the opposite sex. Their attitude towards sexual relationship at school-age is that it is a normal thing, as they have come of age and become sui juris, therefore they are mature enough to learn and make their own decision. It is in the nature of human to have sexual needs, and they understand that other students also behave the same way. If they have a chance, they would do it again. In addition, though they had a lover who is far away, they think what they did is exciting and is a personal secret that their girlfriend cannot know of.

Analysis, Results and Conclusions

From the study on the occurrences in male students who are teenagers in the dimensions of thoughts, attitudes, and behavior towards opposite sex, the researchers have performed a descriptive analysis and will conclude and present three important aspects:

1. *Access to sexual relations and activities* is a social analysis in the aspect of behaviors which shows the relationships between the same sex, the opposite sex, and sexual relations. For the same sex behavior, the relationship is a friendship one, as students of male gender do not have affection for the same sex. They tend to befriend a group of people who share the same thoughts, passion or attitudes, including sexual preferences. On the other hand, building a relationship between opposite sexes can be easy, because of the contributions from the environment, e.g. staying at a private dormitory outside the university, the convenience of internet access and the use of online social network to get to know the opposite sex, being away from home which makes parents unable to teach them of the right behavior, etc. Staying at a dormitory with friends and building a relationship with an opposite sex make the students have activities to do in their free time, have a way to satisfy their personal sexual needs, and can be a topic to chat with their friends for fun. The relationship and feelings between a male and a female student who are attracted to one another is personal and there is nothing to be ashamed of. However, they have to keep it from their parents or lover to avoid any problems that might follow. Therefore, the female party they have a sexual relationship with is cannot be called their girlfriends, but merely a partner to ease their loneliness, while the male students have their own ways of making the female party acknowledge of their partings. The research shows that female plays more roles in starting the relationship between sexes by approaching and starting a conversation first, even though the male party already has a lover. Having girls trying to win over their heart or attention is what arouses male students, and together with their needs to seek for challenges and excitement, they did not refuse those girls, but responded to their needs.

2. *Attitude towards sexual behaviors* is what reflects and represents the thoughts of Thai teenagers today towards behavioral actions between sexes, communication processes, sexual behaviors and ending the relationship with their partners. The researchers have interpreted and divided their behaviors into two dimensions. First, their attitude on actions with the opposite sex to school-age sex is that is its acceptable for male students because of the cultural and value influences from the western nations, and an easy access to different media including television, internet, online social network, which present leading information and create the understanding that such behaviors can be done freely as they depend on personal judgment and do not cause troubles to others. Male students think they will have sexual relations again if chances allow them. Second, their attitude on protections is that they tend not to use condoms during sexual relations, as it gives more excitement and it should not cause them a problem. This occurrence happens because of the careless and impulsive actions of students in their teen years who do not neglect the risks of sexual transmitted diseases and pregnancy, which can turn into a major social problem for both parties, in the aspects of both education and family. Relationship between sexes in the new generation's teenagers seems to be focusing more on personal feelings than the effects on their future education, profession, or their family that might come after they have settled their affairs.

3. *Pragmatic policy.* Findings from the research present the occurrences of male teenagers who are university students in different dimensions. These findings create expectations on institutes who are related, including government sectors and the university, to inculcate teenagers to grow up qualitatively as a university student by constantly outlining a conforming policy in the management level and introducing projects and rules in the operational level, to control their behavior and promote proper sexual knowledge and understandings. For example, implementing a policy to control public media contents, especially online, to provide more guidance on sexual issues; launching commercials for teenagers to create a value on using protection; establishing educational fairs to acknowledge teenagers on sexual relations and the danger of unprotected sex; and encourage the dormitories both inside and outside the university work together to design a discreet control measure on going in and out of the dormitories for both male and female students to reduce the risks of sexual relations in dormitories. Furthermore, each family, which is the closest unit to the teenagers, should educate and guide their children on an appropriate way to approach the opposite sex according to Thai practice.

Teenage is the age of growth and curiosity. Under the consumerism environment, it is hard to forbid teenagers from learning by their own experiences, especially with the media surrounding them. Nevertheless, if there is an integration of inculcation and education in each unit, it will provide a correct understanding, which will help them grow up physically and mentally at the same time, to improve the quality of teenagers and provide benefits for the society.

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The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is enclosed within a large, faint, light blue circular arc that is partially visible. Additionally, there is a faint, light red curved line on the left side of the page, and another faint, light blue curved line on the right side, both appearing to be part of a larger graphic design.

Assessing Students' Performance in Accountancy Through Team Delegation: Self Organize Model vs McGrath's Model (A Team Design Experiment)

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Abstract

This paper aims to (1) assess students' performance in accountancy through team delegation, that is by comparing two team designs, the first one is based on McGrath's Model (class A) and the other one is based on self-organized system (class B), and (2) give a practical guidance for lecturers to facilitate students inside classrooms so lecturers have the capability to build effective team following the guidance developed by Bryant and Albring (2006). We implemented our team designs to second semester accountancy students who were taking 'Introduction to Accountancy' course at Maranatha Christian University. The result shows that the performance of students at class A is better than the one of students at class B. Moreover, the students at class A feel happy and excited when they work in their new teams; in addition, they experience a significant difference between doing tasks by their experience and doing the tasks in their new team.

Keywords: Performance, Team Delegation

INTRODUCTION

Accountancy lecturers in Indonesia have a great responsibility to prepare their students for being successful in their careers as professionals. However, workplaces need graduates who have professional ethics, which are hard and soft skills. Hard skills means graduates should have knowledge and skills both in technology and their fields; soft skills are teamwork, analyzing, and logical thinking abilities which students should have when they graduate. According to a survey done by Maranathan Christian University in 2013 about companies in Indonesia, most companies prefer graduates who have an adequate soft skills to the ones who only have hard skills (high IQ).

Subsequently, accountancy lecturers are often requested to help students develop soft skills from the beginning of their studies, especially the ability of working in a team. Practitioners, professionals, entrepreneurs, management accountants, public accountants, internal auditors, and Ikatan Akuntan Indonesia together emphasize the importance of working in a team skills.

Soft skills competency should be developed inside students continuously; therefore, the skills will become habits and core values inside them. However, this continuous process need the help of lecturers for facilitating the development of competency through delegating specific tasks to students in classroom.

OBJECTIVES OF RESEARCH

The purpose of this article is as follows:

1. Assess the accountancy students' performance by comparing a team design based on *McGrath's Model* with the one based on self-organized system.
2. Give practical guidance to build an effective team by utilizing *McGrath's Model* and following guidance developed by Bryant and Albring (2006).

The overview of this paper is discuss: (1) a team design scenario using self-organized system and specific guidance to build effective team using McGrath's model, (2) an application for building an effective team in classroom, (3) the result of simulation using both methods (based on self-organized system and McGrath's model)

LITERATURE STUDY

Team Design using Self-Organized Model

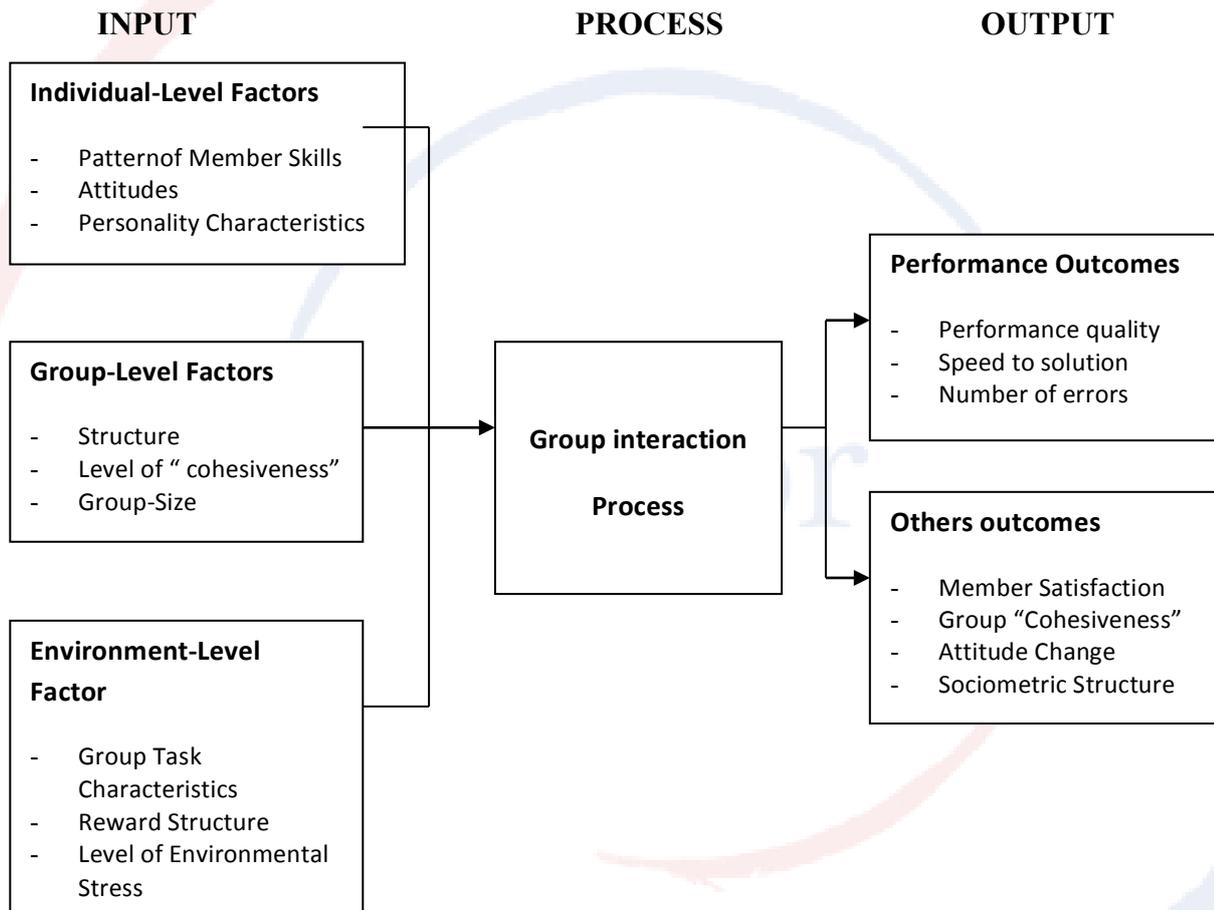
In this model students can freely choose their team members and describe a team leader. Then the group will discuss group rules, schedules, and each member's tasks (without intervention from any lecturers). Lecturers will become a team coach whose responsibility is to provide specific guidance during an assignment. The assignment will be presented by a team representative and the assignment scoring will be done by lecturers using grading rubric.

Effective Team Building Stage using McGrath's Model

Bryant dan Albring (2006) has formulated guidance to build an effective team of accountancy students using McGrath's model (1964). This model consists of input, process, and output described by figure 2.

Figure 2

McGrath's Model of Group Effectiveness



1. Input Stage

The input stage emphasizes on the quality of the input because maximizing the input quality will create a good quality of process and output. Input stage consists of individual-level, group-level, and environment-level factors as follows:

- Individual-level factors***, includes pattern of member skills, attitudes, and personality characteristics.

Pattern of Member Skills

McClough & Rogelberg (2003) found that KSA test was a strongly valid instrument to measure expertise and abilities of team members for forming a team. Instead of using KSA test, lecturers measure expertise and abilities from students'

GPA (Danko *et al.* (1992), Grudnitski (1997)) because KSA test is costly and impractical.

Step 1: Lecturers should distribute students uniformly into groups based on their abilities and expertise.

Attitudes and Personality Characteristics

A person's personality shows a strongly high correlation with one's work effectiveness (Barrick dan Mount 1991).

Step 2: Lecturers should distribute students who dislike working in a team uniformly into groups.

Cockriel (2001) asked two questions to gather aspiration from students, which are (1) Whom do you like to work the most with? (2) Whom do you dislike to work the most with?

Step 3: Lecturers should distribute students into groups based on input/aspiration from students.

- b. *Group level factor* covers structures, team unity, and team size.

Structures

Koppenhaver & Shrader (2003) disagreed that giving students' freedom to organize their team would give undesirable results, specifically for solving complex problems. The undesirable results are caused by team members who have the same abilities and expertise. Diversity is the characteristic of *group level factor*. In academic context, Bryant and Albring (2006) suggested lecturers made groups of students based on their cultural background since this type of grouping would improve students' satisfaction in building a team. The other diversity aspect which needs attention is the gender problem. Speck (2002) recommended a balance of number between men and women in a group.

Step 4: Lecturers should form teams by considering the balance of gender and culture.

Lecturers need to consider assigning a formal team leader for each group. Wysocki (2002) described five team leadership models, such as: (1) *Hierarchy*, (2) *Team leader*, (3) *Team coordinator*, (4) *Shared leadership*, dan (5) *Self managed*. From the five models above, *team coordinator* model gives the most significant advantages. A *team coordinator* can help give directions to a team such as: setting up a schedule, determining deadlines, and other important tasks needed to be done in order to help members stay focused on assignments.

Step 5: A team should appoint a team coordinator who will be responsible for managing the team during completing assignments and being a mediator between the team and lecturers.

Level of "Cohesiveness"

In order that every team member has a commitment, lecturers need to prepare a team contract at the beginning of semester. *Team contract* is the most effective tool psychologically for a team to reach any goals (Greenberg 1996). *Team contract* helps a *team* identify tasks and set up a schedule to finish the tasks. This also help a team divide tasks into small tasks and facilitate a progress of task accomplishments (Bryant 2001).

Step 6: Lecturers should make students write and sign a team contract at the first meeting.

Group Size

An ideal group size is determined by the types and purposes of the team (Katzenbach dan Smith 1999; Speck 2002). For a team consisting of students, the ideal size is 4 to 7 people (Cockriel 2001)

Step 7: Lecturers should form a team consisting of 4 to 7 students to increase each individual's responsibility and decrease social loafing.

- c. **Environment level factor**, covers group task characteristics, reward structure, level of environmental stress.

Group Task Characteristics

Lecturers need to examine the characteric of an assignment before it is delivered to students, whether the assignment is suitable being done by individuals or groups (Jex 2002).

Reward Structure

Ravenscroft *et al.* (1995) stated scoring weighting scheme for individual score is 70% and for group score is 30%. Lancaster & Strand (2001) explained that this model measured individual, team, and individual's contribution to the team. An evaluation by other team members gave an effective motivation for a team. (Koppenhaver dan Shrader 2003).

Step 8: Lecturers should compute students'grades based on mixed incentive grading scheme.

Level of Environmental Stress

Level of environmental stress means time limit and difficulty of doing works (Jex, 2002). Lecturers often give assignments and let students do them without any directions. Lecturers should become a team coach (Hackman dan Wageman 2005).

Step 9: Lecturers should become a team coach and give specific guidance at the beginning, middle, and the end of assignments.

2. Process Stage

In process stage, a team tries to enable all members to interact effectively and efficiently. The main obstacle is interpersonal conflicts. Process stage covers how a team member deals with conflicts and use them as one's success. Greenberg (1996) explained that conflicts can give positive and negative impacts. Conflicts will have a positive impact if decisions and actions are based on *groupthink* (results of group's discussion). Lencioni (2005) also explained how dysfunctional behaviors can damage a team and cause conflicts. Five dysfunctional behaviors which possibly cause conflicts are: lack of trust, fear of conflicts, lack of commitment, avoiding responsibility, and results unconcern.

Building Trust

The most important in building a team is building trust. Trust in this context means every team member is open-minded and focuses on helping other members finish assignments. To build trust, Lencioni (2005) suggested every member should exercise sharing stories about oneself among team members in the first meeting. Sharing does not automatically mean building trust; this is the first step towards building trust among members.

Using Conflicts to Build

Lencioni (2005) explained that sharing could also solve conflicts. Team members are asked to explain what they feel. Team members also share about their experience dealing with conflicts.

Reaching Commitment

Lencioni (2005) defined individual commitment as an individual's ability to deal with disagreement. Reaching a commitment in a team can be done by having a team coordinator asks what decisions have been made in today's meeting. This exercise will confirm what decisions have been agreed and avoid confusion and misunderstanding about next assignments.

Developing Responsibilities

Lencioni (2005) defined accountability as members' willingness to remind other members when they do not follow standards or rules of a team. Lencioni (2005) gave a simple tool to develop responsibilities. This exercise is done after a team has done building trust and each team member has worked together for at least two months.

Focusing on Results

A successful team should focus on achievable goals. Lencioni (2005) explained that a scoreboard is needed to help a team focus on metrics used to define success.

Step 10: Lecturers should facilitate exercises which enable teams to be effective and to complete assignments on time, to build trust among the team members, to resolve conflicts, to agree on a commitment and to be responsible for it, to depend on one another and focus on high quality results.

3. Output Stage

The final stage of McGrath's model is the output stage. This stage encompasses:

- a. Criteria for measuring team's performance (such as output quality, how prompt a team reach solutions, and number of mistakes in a final product).
- b. Other metrics (such as how satisfied team members on their performance, level of "cohesiveness" at the end of assignment, and better behavior of team members).

E. Performance Results

McGrath (1964) stated performance results are extrinsic factor including performance quality, speed to solution, and number of errors. From academic perspective, performance results are:

- a. How professionals' opinions about the quality of graduates?
- b. Can students finish their studies on time? (speed aspect)
- c. How accurate the graduates' skills are when they are compared with the standards (accuracy aspect)

Professionalism

Lecturers ask students a question. The question is: *Will you feel satisfied if you give this result to clients?* Professional accountants demand high quality standards on the final results. Therefore, final results should be accurate and display students' professionalism in team performance.

Punctuality

Quality and punctuality are correlated (Speck 2002). When students finish their work seconds before the deadline, the quality of the work is usually bad. This issue is related to work ethics. Lecturers have opportunities to participate instilling professionalism and work ethics through team building in students. Producing high quality output and punctuality are important professionalism values.

Accuracy

To assess results of accuracy, lecturers need to determine scoring criteria and explain them to students at the beginning of an assignment (Speck 2002). Next Holcomb dan Ruffer (2000) explained that lecturers need to discuss scoring criteria and weighting schemes in detail with students at the beginning of the first assignment. Burch (1887) suggested using a grading rubric to give professionalism, punctuality, and accuracy values.

Step 11: Lecturers should use a grading rubric with a belief in the consistency and the rating of teams' results

Other Results

McGrath's model explained other results as member satisfaction, group "cohesiveness", and attitude change. Questions which are used to measure other results are as follows: Are team members experiencing an conducive team building's environment? *Are team members responsible for one another and dependent on one another? Are they working in a highly conflict situation? Does each member feel he/she has solved something meaningful and useful?* These questions describes how the levels of satisfaction from students are.

Member Satisfaction

Bateman *et al.* (2002) explained about a measurement tool for students to assess their teams effectively. This tool can be utilized to evaluate changing effectiveness during on going assignments. This tool also measures team synergy, performance of achieving objectives, expertise, resources utilization, innovation, and quality. Next Hoevermeyer (1993) developed other tool to measure the effectiveness of a team periodically. The tool consists of 20 questions. Every member gives scores and transfer them into a team's effectiveness scoring sheet. A scoring sheet consists of five effectiveness areas, which are 1. Team's mission, 2. Goal achievement, 3. Delegation, 4. Open and honest communication, and 5. Roles and positive rules. Then the team discusses the values of this agreement and make them as feedback to improve next assignments.

Step 12: Lecturers should prepare a team and tools to measure the team's satisfaction.

RESEARCH METHODS

A. Research Design and Instruments

Authors conducted experiments in two 'Introduction to Accountancy II' classes by giving the same assignment/project in the two classes. The assignment is to solve accountancy case studies. Authors also give different treatments to two classes; the difference is in the selection process of team members for the teams.

In class A, the selection process of team members is fully given to lecturers by using *McGrath's Model* and the process follows guidance (12 steps) developed by Bryant dan Albring (2006); moreover, there are several modifications which authors have done to make the model suitable for students' conditions in classroom.

In class B, students freely choose their team members and team coordinators, and build their own groups. The rules of class, the schedule and the assignment rules are also fully given to groups. A lecturer has a role as a *team coach*, who provides specific guidance at the beginning, in the middle, and at the end of an assignment. The assignment is presented by a team representative and assignment grading only depends on lecturers who are using a *grading rubric*.

B. Research Subjects

The subjects of the experiment were accountancy students from Maranatha Christian University who were taking 'Introduction to Accountancy II' in an even semester. After the assignment ended, authors can gather explanation from students in class A such as:

- a. what did they feel about finishing the project, in the new team?
- b. what were the differences between the assignment they used to do and the one they did in the new team?
- c. what were the positives/negatives (related to behavior changes) which they experienced in the new team?
- d. their satisfaction with the assignment results and students' performance measured by the paper's scoring

The authors also gather information from students in class B such as:

- a. what did they feel when they finished the project with the team they had chosen themselves?
- b. what were the positives/negatives (related to behavior changes) which they experienced in the new team?
- c. their satisfaction with the assignment results and students' performance measured by the paper's scoring

C. Types and Time Limit of the Assignments

The assignment given to students is writing an article about the current issues in accountancy in the world. Student can choose any topics in the current issues. The time frame of the assignment is from the second week of the course to the the last week of the course (approximately 5 weeks).

RESULT

Effective team building has been applied to accountancy students in "Introduction to Accountancy II" (A and B classes) at Maranatha Christian University in even semester 2012/2013. Total number of respondents who were also students was 40 students per class. Students are divided into 8 teams where each team consists of 4 – 5 students. In class A, the selection of team members was determined by lecturers by considering *individual level factors* and *group level factors*. On the other hand, in class B, the selection of team members process was fully given to students. Both class A and B, the lecturer informed the same information such as types of assignments and a deadline.

In class A, *individual level factors* consideration includes pattern of member skills, attitudes, personality characteristics, and aspiration/input from students. *Group level factors* includes structures (balance between two genders and culture and the appointing of a team coordinator), level of 'cohesiveness' (a team contract) and group size. Information about *individual level factor* and *group level factors* was acquired from students who had filled forms distributed at the first class session. In class A, team members were requested to tell stories about themselves, their experience, and

core values. Each team member shares stories one a time. Students also had chances to know better every member when they answered quizzes in every classroom meeting.

In class B, the team is formed by students' decisions. All efforts to do the assignment and to make team 'cohesive' were fully determined by the team.

At the end of project/assignment, assessment in class A and B utilized *mixed-incentive model*, which combines individual effort (70%) and team's effort (30%).

At the end of team building process, students in class A were requested to fill in a form consisting of questions about (1) what did they feel about finishing the project, in the new team? (2) what were the differences between the assignment they used to do and the one they did in the new team? (3) what were the positives/negatives (related to behavior changes) which they experienced in the new team? (4) their opinions about ideal team characteristic; (5) scenarios which need improvements in forming a team; (6) their satisfaction with the assignment results

On the other hand, students in class B were requested to fill in a form consisting of questions about (1) what did they feel about finishing the project, in the team they had chosen? (2) what were the positives/negatives (related to behavior changes) which they experienced in the new team? (3) their satisfaction with the assignment results

1. Respondents' Feeling when the Assignment Finished

Class A

30% of the respondents, 12 of 40 respondents described that they had difficulties with the new team because of the incompatibility (characters, opinions, and schedule) among themselves. On the contrary, 70% of respondents, 28 of 40 respondents described that they felt happy and excited about working in the new team because they had new friends, a clear distribution work at the beginning of the assignment, a team contract approved by team members, and the most enjoyable thing was the assignment could be done according to the schedule.

Class B

80% of respondents, 32 of 40 respondents stated they were not satisfied with the formed team because of many reasons such as not knowing team members properly, no commitments to finish the assignment, not getting involved in the team. On the other hand, 20% of respondents, 8 of 40 respondents described they felt happy and enjoy working in the team with reasons such as knowing team members well; therefore, the distribution work and schedule could be carried on well.

2. The Differences between the Assignment Students used to do and the one they did in the new team

In class A

30% of respondents, 12 of 40 respondents stated they felt no significant differences between the assignment they used to do and the assignment they did in the new team. On the other hand, 70% respondents, 28 of 40 respondents explained they felt significant differences between the assignment they used to do and the assignment they did in the new team. The significant differences are they had to work together with new friends; therefore, it needed extra patience to deal with them. Working with new friends also fostered responsibility, motivation, and demands needed to finish the assignment well and to gain trust. The new team gave new experience to all team members. The assignment in the new team demanded cooperation, team work, and opportunities for team members to explore themselves.

In class B

100% of respondents, 40 respondents stated that they felt no significant differences between the assignment they used to do and the assignment they did in the new team.

3. The Positives/Negatives (related to Behavior Changes) which They Experienced in the New Team.

Class A

95% of respondents, 38 of 40 respondents answered they experienced and learned several positive things related to changing behavior when working in the new team.

87% of respondents, 35 of 40 respondents stated that they have successfully managed to reduce and eliminate negative behavior through the experience from working in the new team.

Class B

90% of respondents, 36 of 40 respondents mentioned they **unsuccessfully** reduce and eliminate negative behavior from themselves through experience gained from working in the new team.

Only 10% of respondents, 4 of 40 respondents explained that there were some positive behavior they got from the new team which were: (1) Becoming more patient, open, more tolerant to others, and better anger management. (2) Learning how to adapt to different characters.

4. Respondents' Opinions about Ideal Team Criteria

Class A & B

In general, respondents answered that the characteristic of an ideal team is a team who has a responsible, firm, and inspirational leader; team members who are creative and

team players, listen to members' opinions, team members complete one another, open and tolerant; all members have a unity of purpose, have contributions, are disciplined about time management; have a good planning and clear distribution of work; honor an Indonesian proverb "berat sama dipikul, ringan sama dijinjing" based on trust and commitment among team members.

5. Scenarios which Need Improvements in Forming a Team in a class

Class A

28% of respondents suggest lecturers should keep giving freedom to choose students' team members for students so the assignment can be done according to schedule and the freedom will reduce conflicts among team members. Another suggestion is that it will be better if lecturers give rewards to the most successful team.

Class B

80% of respondents said lecturers should help students choose team members so each team has an equal distribution of students who have high and low GPA. The equal distribution will, hopefully, make high GPA students help low GPA students.

6. Students' Performance Measured in a Class

Class A

There were 10% (4 students) who got 9 of 10; 60% (24 students) got 8; 20% (8 students) were 7 and 10% (4 students) were 6 and no one got 5.

Class B

There were 5% (2 students) who got 9 of 10; 30% (12 students) got 8; 40% (16 students) were 7 and 20% (8 students) got 6 and 5% (2 students) got 5.

CONCLUSION & DISCUSSION

A. CONCLUSION

The simulation of building an effective team summarizes some points as follows:

1. In class A, 70% of respondents feel satisfied with the new team and 95% of respondents experience positive feedback related to changing behavior and successfully reducing negative behavior within themselves during working in the new team. On the other hand, there are 80% of respondents who feel unsatisfied with the new team, and all respondents feel no significant positive changes in their behavior.

2. In class A, 70% of respondents feel happy and joyful when working in the new team and they feel there are significant differences between doing assignments they used to do and doing the assignment in the new team. In class B, all respondents (40 students) mention that they do not feel any significant differences.
3. In general, respondents desire a team who has a responsible, firm, and inspirational leader. The team should also have a plan, a unity of purpose, and have team-player members.
4. 72% of respondents in class A mentioned that scenarios delivered by lecturers in forming teams are well-written and well-executed. Moreover, in class B, 80% of respondents hope lecturers help them do the team selection process.
5. The performance of class A is better than the one of class B based on the scoring scheme.

B. DISCUSSION

The simulation has some limitations that is the number of respondents is 40 students per class. There is a possibility if we increase the number of classes (with large number of respondents), the result of the simulation will be better.

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Designing a Creative and Innovative Learning to Create Accelerated Learning in Accountancy Class: A Merging Application between Ingenuity Learning Model and TANDUR Acronym

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Abstract

The purpose of this paper is to give understanding of the importance of the accelerated learning approach and explain how the content of an accountancy subject can be designed by accelerated learning model. Accelerated learning model in this paper focuses on the emotional aspect of the learning, which is the merging between ingenuity learning model and TANDUR acronym. TANDUR acronym per se represents the realization of accelerated learning. TANDUR stands for “*Tumbuhkan* (To grow), *Alami* (To experience), *Namai* (To name), *Demonstrasikan* (To demonstrate), *Ulangi* (To repeat), and *Rayakan* (To celebrate)”.

Keywords: accelerated learning, TANDUR acronym, ingenuity learning model

INTRODUCTION

Every learning process has always three important components which are related to one another. The three components are curriculum (the courses which are being taught), process (how the courses are delivered), and product (the output from the learning process). Nowadays most lecturers focus on the curriculum and the product and they forget that a process is indispensable to bridging between curriculum and product.

What happens these days in Indonesia is when lecturers teach students, they believe that all students will definitely study by themselves after the lecture finishes; however, most students do not. The fact shows that most of undergraduate students in Indonesia do not display all attributes which should have been attached to individuals who call themselves scholars (Suwardjono, 2003).

The burden on most undergraduate students is that it is difficult for them to stay focused 2.5 hours listening to a lecturer. They hope that the lecture ends very soon, they are not asked any questions by the lecturer, the number of attended classes is enough, and they can pass exams.

Learning is considered as a social need to make their parents happy and not as a social need for self-development and maturity (Suwardjono, 2003). Therefore, they feel learning as a burden and suffering.

This misperception will result in learning spirits and attitudes which will be far below our expectation. Moreover, this situation will be worsened by attitudes and perception of lecturers whose perception is that their responsibilities are only teaching in class during a given slot of time. Lecturers' expectation is that students pay attention to the lecturer, listen carefully to what the lecturer says, and ask questions during lessons; consequently, all the students will pass exams. The expectation to achieve a successful learning is getting more difficult as the subject is more difficult to understand.

In most undergraduate students' opinion, accountancy study which is based on a lot of concepts and standards is difficult to understand and study; moreover, it is even more difficult to apply into the real world.

Therefore, the purpose of this research is to guide accountancy lecturers through learning model designs so that the lecturers can maximize students' learning styles, utilize students' intelligence, improve students' motivation, foster creative ideas and invent innovative solutions in solving problems. This process will eventually increase the effectiveness of accountancy learning process in a classroom. The accountancy learning design in this paper will be based on the accelerated learning concept with TANDUR acronym and ingenuity learning model.

The remainder of the paper is organized as follows. Section 1 explains the accelerated learning concept. Section 2 discusses the modified accelerated learning concept (accelerated learning with TANDUR acronym) and ingenuity learning model and section 3 shows how to design an accelerated learning model on accountancy learning process.

LITERATURE STUDY

1. ACCELERATED LEARNING CONCEPT

Meier (2000) in his book "The accelerated learning handbook" defined that accelerated learning is the result achieved not the methods used. Accelerated learning focuses on result and NOT on the methods used, such as games, music, color, and activities. If the method used can accelerate and maintain learning process, the method can be said as an accelerated learning; on the contrary, if the method used can not create and maintain accelerated learning, although it is creative and fun, the method cannot be said as an accelerated learning method.

Madden (2002) stated that accelerated learning method is a learning method utilizing learning styles which matches with the way a brain is functioning; therefore, the method produces better understanding and better information absorption which, in the end, learning process becomes faster than before. The relation between the way a brain is functioning and learning styles has been explained by researchers and they have come to the conclusion: *if there is no emotional involvement, there will be no*

learning (Bobbi DePorter, 1999). This emotional aspect will be emphasized in accelerated learning model in this paper.

Accelerated learning method is a system designed with united efficient coherence which involves students, lecturers, learning process, and learning environment. In *accelerated learning*, we put students as the center of learning process; they are the education subjects and not the education objects. The best learning process given to students is the learning process which is started by discovering and understanding students' needs. After that, lecturers should help students develop to their full potential through the correct learning methods.

In practice, these methods are known with various names such as accelerated learning, quantum learning, quantum teaching, superlearning, efficient and effective learning, and so on. The main goal of these methods is the same, which is how to make a learning process efficient, effective, and enjoyable. If we delve into the source of these methods, we will find one name, Dr. Georgi Lozanov, a Bulgarian who developed this method for the first time. He is the father of accelerated learning.

Accelerated learning models which will be discussed in this paper is an ingenuity learning model developed by Ed Sobey (2006) and TANDUR acronym (Se Tin, 2008). The ingenuity learning model is formed by merging design learning model developed by Bobbi DePorter, Mark and Nourie Reardon, and Sarah Singer (1999) with Genius Learning model developed by Adi W Gunawan (2003). We have included and considered Indonesia's culture diversity, social economy condition, and national education system; specifically, we also embrace one of the goals of national education, which is to educate Indonesians now and in the future.

When we examine a learning process in a class, we will see that old-fashioned and conventional methods we have been using for all these days are the methods which less appreciate our dignity as human beings. The point is that we often treat students as empty containers which we as lecturers will fill them with a lot of knowledge and information. We seldom find lecturers who genuinely focus on the emotional aspects of their students and their physical and mental readiness to teach. What happens frequently is that a lecturer comes in a classroom, students sit passively, and then the

lecturer begins to teach. We need to consider that a human being consists of body and soul (feelings, thoughts, memories, and awareness); therefore, in order that a learning process is maximally optimized, we should be able to accommodate these two aspects, which are body and soul.

In order to implement accelerated learning, we need to start from one belief and hope that if every student is motivated appropriately and taught correctly, that is their uniqueness are appreciated, the students will achieve maximum learning outcomes.

2. ACCELERATED LEARNING WITH TANDUR ACRONYM & INGENUITY LEARNING MODEL

Accelerated learning model described in this paper is an ingenuity learning model developed by Ed Sobey (2006) and TANDUR model acronym (Se Tin, 2008). Regarding the opinion that “*if there is no emotional involvement, there will be no learning*” (Bobbi DePorter, 1999), the aspect of the accelerated learning model discussed in this paper will be focused on the emotional aspects of the students.

Accelerated learning model in this paper uses TANDUR (*Tumbuhkan* (to grow), *Alami* (to experience), *Namai* (to name), *Demonstrasikan* (to demonstrate), *Ulangi* (to repeat), and *Rayakan* (to celebrate)) acronym to explain elements needed when designing an accelerated learning method. The following will discuss an accelerated learning model and elements inside TANDUR acronym.



Step 1 TUMBUHKAN (To Grow)

Create a conducive atmosphere, connect teaching materials with previous knowledge, give a big picture of materials, and explain the goal we would like to achieve

Lecturers often have a lot of problems about student learning in a classroom, even after they have been teaching for more than ten years. Lecturers feel they have prepared well; however, students can not absorb the delivered teaching materials. Students look bored and sleepy in class. Students have a passive attitude and do not understand what the lecturers teach in class; consequently, all these boring conditions make lecturers even more frustrated when they face with the problem that they have to deliver so many materials in a very limited time. Dealing with learning problems which looks like tangled threads makes lecturers ask “Why?”

The initial step which is very important and we often ignore is how we prepare a conducive learning atmosphere.

1. Conducive Atmosphere

A well-known American philosopher, William James stated that the deepest desire inside a human's heart is the desire to receive appreciation. A conducive atmosphere will be established if students feel safe, lovable, and being valued during a semester. Gunawan (2003) utilized PARTIS method to explain what conducive atmosphere is. PARTIS stands for:

- *Perasaan diterima* (Feeling accepted)
- *Aspirasi* (Aspiration)
- *Rasa aman* (Feeling safe)
- **T**antangan (Challenges)
- **I**dentitas (Identity)
- **S**ukses (Success)

***Perasaan diterima* (Feeling accepted)**

Feeling accepted can be seen as a feeling of approved and appreciated by lecturers or other students. Students who feel accepted will consider themselves as a part of a community, which is important for themselves, and they will receive acknowledgement from lecturers and other students.

Aspirasi (Aspiration)

During learning process, it is very important for students to believe that what they learn will be beneficial to their lives, and the most important thing is that students understand the outcome of the learning (what skills students are expected to have after finishing the learning). Students who have aspiration will determine realistic and attainable learning goals. They will have a responsibility to study hard; therefore, their attitudes towards learning will not become bored and passive during semester.

Rasa Aman (Safety feeling)

Safety feeling in learning context is a comfortable (physical and mental) feeling students experience when they are in a classroom. Students who have this safety feeling will demonstrate positive attitude towards learning process, lecturers, and other students. They will not challenge lecturers' authority and will become much more independent than before they have the feeling.

Tantangan (Challenges)

It is important that students believe that they have the capacity to succeed in their study. Building students' self-concepts that they have the ability and this will not be easy if the students are still in their *comfort zone*. The *comfort zone* in this context is when they already feel satisfied, and comfortable with their conditions. In order to create a successful learning process, students are requested to develop their learning capabilities, and their learning capabilities are related to how wide their comfort zones are.

Therefore, it is important for lecturers to understand this concept and to always give positive challenges to their students; hopefully, the challenges can enlarge their comfort zones. Several tips for lecturers to help students cope with challenges are: giving tests, comparing students' grade in the first test with the one in the second test, informing the result obtained by the students, each time giving students different responsibility and roles.

Giving challenges can make students better and greater. Giving positive challenges will build better self-concept and, eventually, will improve students' learning ability.

Identitas (Identities)

Students need reinforcement of their self-identities, which means that *students have to know exactly what their strengths and weaknesses are, and know the values and beliefs they have*. Students who have strong identities will have strong mental resilience; therefore, they will be able to survive from negative effect of an action, for example, possible failures and courage to criticize. They will regard failures as feedback.

One of the methods which can be implemented by lecturers to help students develop their self-identities is to know students better (not just know their names), give praises and rewards, assure that students have hopes and beliefs to reach their goals and finish their studies

Sukses (Success)

Most students have their own successful experiences and these experiences will be effective for them to repeat their next successes. The presence of successes inside themselves will be marked by satisfaction on their achievements and self-confidence which is shown when the students give their opinions. At this point, it is important that lecturers give positive affirmation whether the success is big or small. Lecturers should consider students as smart students and explain that to achieve success takes a lot of effort; moreover, lecturers should be able to help students determine measurable goals and give opportunities to them for telling their own success stories. Hopefully, the students' self-confidence will increase significantly later on.

- *Perasaan diterima* (Feeling accepted)
- *Aspirasi* (Aspiration)
- *Rasa aman* (Feeling safe)
- *Tantangan* (Challenges)
- *Identitas* (Identity)
- *Sukses* (Success)

PARTIS (the abbreviation for Perasaan diterima, Aspirasi, Rasa aman, Tantangan, Identitas, Sukses) can be adopted by lecturers during one semester.

The purpose of creating conducive environment is to make students learn and understand lessons quickly and easily.

2. Connect the Lessons with the Previous Knowledge

Before starting the lesson in class, lecturers need to make a connection between what will be learned and what has been learned by students from their past studies or experiences.

Why? Most lecturers always think that students are ready to study when they are in a classroom.

Most lecturers seldom or never think about students' thoughts at that time. Therefore, to draw students' attention, lecturers need to connect the lesson which will be learned in classroom with the previous knowledge students have so the students have readiness inside themselves.

Then how can we make student ready? Begin every learning process with the certainty that what will be learned today is always connected with what has been known by students through their experiences or past learning process, and connect what will be learned today with what the students will encounter in the future. The more personal the relationship can be created, the better the result will be. The easiest way is to ask questions. When students think to answer a question, their memory will be filled with new information and the information which is not related will be taken out. Moreover, students need to understand the applications of what they have studied.

The connecting process will be very effective and have a strong influence if it involves emotion. Therefore, try to have activities which involve students physically, mentally, and emotionally. This stage can be supported with playing instrumental music. The purpose of playing music is to relax brains so the brains are ready to carry information into the memory.

The purpose of the connecting stage is to amplify the understanding about today's lesson which will be learned and remove memory which has no connection to the today's lesson.

Referring to the seven stages of ingenuity learning model, lecturers can start with 3 (three) first stages, which are *challenge, build and play/test*. In challenge stage, lecturers can ask questions or challenges. In **Challenge** stage, lecturers start by asking questions or challenges. Challenge and questions make us think. Challenges make students do, move, and think. In **Build** stage, process of building will raise many questions that will not arise as quickly in a design process. Students work best when they can start manipulating the materials instead of trying to sketch a design. They design by building it. In **Play/Test** stage is the stage where you earn your paycheck. Your great question will get them to think and learn. Don't let them escape your questions.

3. Class Material Overview

Before lecturers begin the learning process, they have to give a big picture of the today's lesson so *the big picture can help students' mind be prepared in absorbing the class material*. Giving a big picture functions as giving commands to mind which creates a folder which will be filled with class material.

The work principle of the big picture is similar to the function of picture in a puzzle game. We can image that we have to solve a puzzle which consists of 1000 pieces without being given a big picture.

4. Determining the Objectives

In this stage the learning process has just begun. The final objectives which we would like to achieve should be mentioned so the students can learn and understand the material faster and easier. We can show the objectives of the learning process with big and clear letters. It will be better if the objectives are displayed and readable by students during the lesson.

This stage is also a goal setting stage for students. Lecturers give the details of the objectives and the how-to achieve those detailed objectives to students

Step 2 ALAMI (To Experience)

Give learning experience, develop needs to discover

Most lecturers begin teaching by explaining theories and concepts which contain unfamiliar standard terminologies for students. It seems certain that students will feel learning as a huge burden, confusing, and exhausting. So how can we make learning an enjoyable experience for students? Lecturers should consider that all students have knowledge from previous studies and past experiences. When students learn anything from real life, they have had initial experience. When they encounter a new experience in front of them, they will gather information to understand the new experience. They will create “learning moment” for themselves, and convert abstract information into concrete one.

The purpose of this part corresponds to stage 4 in ingenuity learning model, which is **improve** stage. In this stage, effective teams will do many test/rebuilds. Each iteration of the build, test, improve cycle should generate new understanding.

Example:

A lecturer tells students the objectives of today’s lecture; students will study about “cost allocation”. The lecturer starts explaining the concept by firstly giving a simulation to students. This is the simulation!

You are going to a pizza restaurant together with your group (students have been divided into several groups). Everyone may order food which one like. Having finished eating, it is paying time. Assume that everybody has to pay one’s food. How much money does everybody need to pay? Give reasons to every method which is used!

The lecturer gives learning through “a back door”; the learning takes the students’ knowledge, experience, and curiosity. Learning from experience will create a lot of questions for students, for example: Why? How? What?

*Experience will build up students’ curiosity and ... BUM. The lecturer **names** what has been learned.*

Step 3 NAMAI (To Name)

Give “Information” right at the moment curiosity peaks.

After students gain experience over the given class material, lecturers can answer all questions and curiosity from what they have experienced. Lecturers guide students until students find the NAME of what they have experienced.

The NAME in this context is the name of all information which is explained and becomes the class material. The naming process will be fun and exciting for students because the process is built over students’ knowledge and curiosity at that moment.

Example:

Cost Allocation simulation

After students explain how they determine the amount money which every member of each group needs to pay, they also need to explain the reasons behind the method. Next, lecturers explain how cost allocation concept has been learned from the simulation. Some questions may arise:

- Assumption: If the amount of money in the bill is divided equally, is it fair for everyone?
- Why is the method fair?
- Lecturers explain the fairest method of allocation techniques, such as: direct allocation, driver allocation, and, last but not least, allocation itself. Lecturers guide students to find a keyword to name cost allocation technique which is “DAD” keyword (taken from the first letters of the three methods)

This stage aims to help students build a structure called knowledge through experiences they gained.

Involve Learning Styles at the NAMING Stage

Lecturers hope that information delivered at the NAMING stage will be remembered for a long time. This will happen if the entering information into memory process is done with fun and relaxed. In order to deliver information in a fun way, lecturers need to consider that every student has various learning styles; therefore, lecturers should accommodate the three learning styles, such as: auditory (through hearing sense), visual (through seeing sense), and kinesthetic (through motion and emotion).

Lecturers should also determine what level (cognitive, affective, and psychomotor competency according to Bloom's taxonomy) the students will be asked to think. For example, at cognitive competency, does a student only need to think at knowledge, comprehension, application, analysis, synthesis, or evaluation level? Bloom's taxonomy is not discussed in this paper.

Step 4 DEMONSTRASIKAN (To Demonstrate)

Connect past experiences with new information to improve appreciation and make it as a personal experience.

The purpose of this step is corresponding to stage 5 and 6 in ingenuity learning model, which are the *share and reflect* stages. Share make teams pride in their model and are anxious to show them off dan pada tahap **Reflect**, Talk about how the model worked, and the science behind them.

In this stage, lecturers give opportunities to students to demonstrate / prove that they understand the class material or they have completed the course objectives.

Example:

Lecturers test cost allocation concepts which have been taught by giving a small case study about cost allocation. Lecturers ask students to allocate cost and explain how the logic behind their decision is.

A department pays an electricity bill as much as 30,000,000 per month. The bill consists of three costs which are for three divisions as follows: production, marketing, and finance divisions. The report shows that production division has used 4,000 Kwh, marketing division is 400 Kwh, and the finance department is the rest. 1 Kwh = Rp500,-.

If you are the head of this department, what methods will you used to allocate the costs (how to allocate each cost to each department). Which one is the fairest method and why?

Step 5 ULANGI (To Repeat)

*Stick the big picture into the mind to foster “I know that I understand this!”
Exercises make understanding permanent*

In this stage lecturers give opportunities to students to do repetition and anchoring at the end of class session. Students also make summaries about what has been learned. The purpose of this step is to help students memorize and grow “*I know that I understand this!*” feeling so they are sure that they have mastered the material.

Step 6 RAYAKAN (To Celebrate)

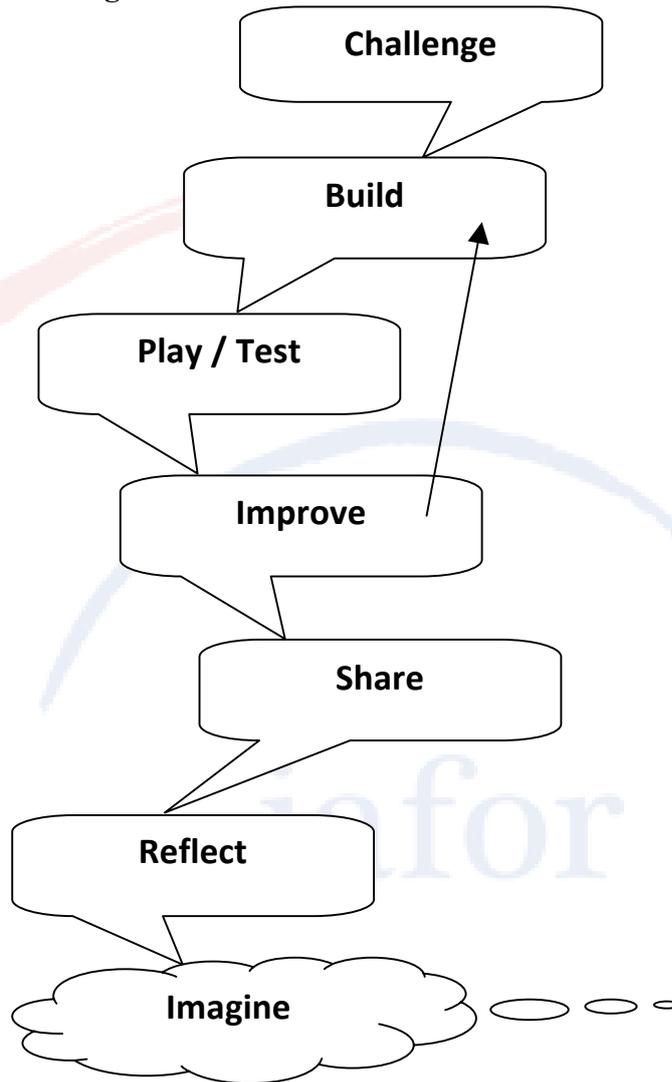
If it is worth learning, it is also worth celebrating

After learning process which takes a lot of effort, concentration, and persistence is done, students need to get appreciation or recognition over what they have done. This appreciation or recognition will amplify the success of the state in which they understand the material. This final stage will also be assets for lecturers to get acceptance from students in the next session because the conducive environment in classroom has been established.

Students need reinforcement in their study, so celebrate!

This final stage from ingenuity learning model is the *imagine* step. Spark their imagination by suggesting that they can continue learning suggesting how they could do it. Encourage them to get more interest and curiosity, and then back to where we started: challenge.

Ingenuity Learning Model



3. DESIGNING ACCELERATED LEARNING MODEL IN ACCOUNTANCY LEARNING

To help lecturers design accelerated learning model in accountancy learning, authors make an example of accelerated learning application for the first session in Introduction to Accountancy 1 class. The example given covers learning scenarios (enclosed).

CLOSING REMARK

Enthusiasm, learning styles, and students' attitudes towards learning are determined by awareness about clear individual and educational institutions' objectives. The harmony between these two goals will transform learning process in classroom into fun and exciting activities. How can this happen? Only by designing a learning model in which lecturers can build partnership with students so lecturers can build a bridge to students' world and bring them into the learning process.

We highly hope what has been delivered in this paper will help lecturers design a dynamic and attractive learning process.

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*A Study of Learning Motivation of Current and Prospective School Teachers in
Online Psychology Classes*

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Abstract

In this work, a method for quantifying learning motivation (LM) has been developed and the nature of LM in online students was explored. One hundred eight graduate students which were current and prospective school teachers and took the author's online psychology course in 2011-2012, participated in the study. The research methodology included the analysis of students' coursework and collecting info about students' experience as on-line learners via a brief online survey. The 100-score scale of LM for representing the individual and collective data was designed. Criteria for recognizing unmotivated, motivated, and overmotivated students were developed. Two co-existing components of LM – pragmatic (grade-oriented) and cognitive (knowledge-oriented) – were discerned. Further analysis showed that a) motivated students constituted an overwhelming majority 83% of the total population, b) most motivated students were rather pragmatically than cognitively oriented in their learning, c) enthusiastic individuals that is, cognitively active, curious, and eager to get knowledge without being encouraged or rewarded constituted only 10% of the population. Considering these results in a wider socio-cultural context, the author suggests that further study of teachers' motivation seems to be helpful for understanding and treatment of the much discussed problems in the modern US primary school education.

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Introduction

Indifferent and careless school teachers cause much harm to a society. That is why the study of teachers' motivation is one of the key points in educational psychology. This line of study receives a new incentive in the present epoch of intensive development of informational technologies and Internet based distance educational programs. Thus investigations of motivation in the educational process expand to a new learning environment. In this work an attempt is made to study learning motivation (LM) in online psychology classes.

The Concept of Learning Motivation

The phenomenon of LM has been explored in modern psychology and educational practice since the beginning of the last century. However, there is no agreement in how it should be termed. Often the concept of *interest* is used to describe a stimulating role of motivation in learning (Krapp, 1999). LM is also defined as a factor arousing, persisting, sustaining, and directing behavior in school (Skinner, 1947). Authors use *desire* and *drive* as synonyms for LM. Motivation is posited as a synthesizing factor for human cognition and affect known as fundamental aspects of any functioning including learning. In the last few decades, the term *academic motivation* became very popular (Vallerand et al., 1992; Frontier et al., 1995; Green et al. 2006). Despite of the variety of terminology, the actual subject being studied is LM.

“Motivation is a desire for and movement toward special goal. It is more than a wish or a day dream: true motivation awakens and sustains actions that propel a person closer to a goal. At its base, motivation is also a search for personal meaning and a reflection of a person's deepest values” (Mwenda, 2012). This definition emphasizes that motivation determines not only what people do, but also how they reason what they do. Such a multifaceted understanding of motivation is important because it exposes its specifics in learning. And LM can be defined not only as the student's desire to reach some educational goals, but also as his/her acceptance and perception of the educational goals, tasks, and requirements as his/her own personal and meaningful values.

Scholars distinguish between intrinsic and extrinsic motivation, “based on the different reasons and goals that give rise to an action” (Thoonen et al., 2011). When describing students' motivation to learn, they define intrinsically motivated students as undertaking an activity “for its own sake, for the enjoyment it provides, the learning it permits, or the feelings of accomplishment it evokes” (Lepper, 1988). Extrinsically motivated students perform in order “to obtain some reward or avoid some punishment external to the activity itself” (Lepper, 1988); they “do something only because it leads to a separable desired outcome” (Thoonen et al., 2011). Intrinsic behavior does not require a reward, and it results in high-quality learning (Ryan & Deci, 2000).

Along with the concept of motivation, the concept of amotivation was introduced, although later. In the last decades the new phenomenon has been actively researched (Vallerand & Bissonnette, 1992).

To study LM, specialists tend to use interviews and surveys measuring students' perceptions and opinions (Fortier et al., 1995; Pakulina & Ket'ko, 2010; Thoonen et al., 2011). Another method is based on the analysis of products of human labor and creativity which reflect in-depth personal characteristics. Being more direct, the latter is at least as, or even more objective and efficient than the prior. This method (sometimes in a combination with a survey) is fruitfully used by educators nowadays (Hartnett, 2010; Hartnett et al., 2011; Dadach, 2013). We also use this method for our study of LM. One's activity is the best projection of one's personality and motivation, and among many human activities learning is probably especially significant.

Research

The purpose of this work was to develop a method for quantifying LM in on-line classes and, using it, to study LM in online students. In particular, this method examined LM of graduate students who are current or prospective school teachers. Additionally, it was studied how participants' LM influenced their academic achievement within a new and unusual learning environment.

The investigated population consisted of 108 students, all of them current and prospective school teachers, who took the author's online psychology course *Child Development and Learning in the Cultural Context*. The study was conducted within three consecutive semesters: fall of 2011 with 40 participants, spring of 2012 with 48, and fall of 2012 with 20. We shall name them the A-, B-, and C-groups.

The research methodology included creating rules of coding the data, designing a scale of LM, analyzing the students' coursework submitted to the course site, and mathematical analysis of the collected data. Also a brief online survey collecting info about students' experience as on-line learners was conducted. At the end of the semesters, students' final course grades were collected.

The hypothesis consisted in the following. There were certain requirements determining the way in which the coursework should be done to be accepted and graded. If a student met those requirements, we concluded that s/he had LM; a failure to meet these requirements was interpreted as lack of LM.

Quantification of Learning Motivation

The Online Course Content and Requirements

Homework assignments (HM). Each assignment consisted of two parts: reading the textbooks or Internet articles provided by the instructor and use this information to answer questions also provided. There were eleven homework assignments; each of them typically included three questions. The activity was mandatory. Requirements for this activity included:

1. Timely submission: each assignments should be submitted by a due date scheduled
2. Sufficient quantity: all questions should be answered completely

3. Sufficient quality: all answers should be brief (no longer than 60-80 words), clear, to the point; key words/phrases in every answer should be formatted as bold face.

Group discussions on the Discussion Board (DB). There were five discussions; each of them was devoted to one psychological or educational issue related to the course topic. Students were expected to respond to a question posted by the professor, share their experience, and exchange opinions with classmates. The activity was mandatory. Requirements for this activity included:

1. Timely submission: responses should be posted by a due date
2. Sufficient quantity: at least two responses ought to be posted for each discussion – one response to the professor and the other to any classmate; at least two references should be provided for each discussion forum
3. Sufficient quality: responses were expected to be substantial, supported by the student's personal educational experiences and the references found in e-libraries or e-data bases.

The Final Research Paper (RP). One research paper had to be written on the topic "Comparative Analysis of Different Theoretical Approaches to Child Development and Learning". The activity was mandatory. Requirements for this activity included:

1. Timely submission: research papers must be submitted by a due date
2. Sufficient quantity: bibliography and the paper outline should be submitted preliminary
3. Sufficient quality: the paper content should correspond to its topic, and the topic should be developed in full

The Educational Forum (EF). A special forum on the DB was open, and current educational, scientific, and administrative news in articles and on videos about children without and with special needs were presented there. There students could place their own findings. Participating in this activity was optional. No requirements were given.

The Principles of Coding Data

All students' learning activities and actions that comprise them were recorded in the course site, analyzed and coded accordingly to their correspondence to the course requirements. Three characteristics of students' coursework were measured: temporal, quantitative, and qualitative; each allowed values 0, 1, or 2.

Coding homework assignment:

1. Temporal characteristic: a missing homework received 0; a timely submission received 1; a submission done in advance (more than a week before a due date) received 2.
2. Quantitative characteristic: homework with two missing answers received 0; homework with one missing answer received 1; homework with all answers received 2.
3. Qualitative characteristic: homework with at least one incomplete or incorrect answer received 0; homework with all complete and correct answers received 1;

homework with at least 2 answers out of 3 expressed “briefly, clearly, and to the point” received 2.

Coding DB post:

1. Temporal characteristic: missing responses received 0; timely responses received 1; responses posted in advance (more than a week before a due date) received 2.
2. Quantitative characteristic: one or less responses received 0; two responses received 1; more than two responses received 2; one or less reference received 0; two references received 1; more than two new references (not found by classmates) received 2.
3. Qualitative characteristic: a response missing or not including a personal experience received 0; a response presenting a personal experience received 1; if a student expressed a new idea stimulated by references or the discussion, his/her response received a “2”.

Coding the Final Research Paper:

1. Temporal characteristic: missing paper or a late submission received 0; timely submission received 1; advanced submission (at least a week before a due date) received 2.
2. Quantitative characteristic: missing preliminary bibliography and paper outline received 0; bibliography and outline that needed revising received 1; complete bibliography and correct paper outline received 2.
3. Qualitative characteristic: missing paper received 0; paper needed revising received 1; complete and rich in content paper received 2.

Coding participation in the Educational Forum:

1. Quantitative characteristic: no attendance received 0; one attendance received 1; two and more attendances received 2
2. Qualitative characteristic: no participation received 0; participation in discussions without sharing personal experiences received 1; active participation with sharing personal experiences and contributions in a form of new Internet resources received 2.

The Scale Design and Data Representation

The 100-point scale of LM was designed for the author’s specific course with its unique content and certain requirements. To develop it, four hypothetical students were invented. Two of them were called *perfectly motivated* and *perfectly unmotivated* students; they determined the left-most and right-most points of the scale. These individuals do not exist in reality; they with their highest and lowest scores were needed for mathematical transformations of the real students’ data. Two other imaginary individuals were *the lower boundary* and *the upper boundary* students. They were supposed to separate results of motivated, unmotivated, and overmotivated students from each other.

The data of four hypothetical students was coded according to principles described above. The row data were calculated and scaled. First, all the four values representing four types of the coursework were normalized: in each category the score was divided by the maximum possible score, and then a weight of 25% was attributed to all of them.

The course work of each participant of the study was coded identically. So, after these necessary mathematical transformations, every student hypothetical as well as real could be characterized by a tuple of four values, and their sum represented his/her LM manifested in the course.

The perfectly motivated student does everything in the best way. He is not just always on time, he is consistently ahead of the course work' due dates. He not only meets requirements regularly, he always exceeds them. He has the best scores for each type of the coursework. LM of this student is 100% and determines the right-most points of the scale.

The perfectly unmotivated student systematically violates all aspects of the course policy, does not study, and fails. He has a 0 for each type of the coursework. LM of this student is 0% and determines the left-most point of the scale.

The lower boundary student is modeled according to the college's policy determining which academically underachieving students should still be given a chance to eventually complete the coursework and receive a passing grade. Such a student should submit the maximum of assignments required (except the final paper) and complete at least 50% of the coursework by the end of the semester. This students' row and scaled tuples of four values are shown in the Table 1. The sum 23% should be considered the boundary on the scale separating results of unmotivated students from motivated ones.

The upper boundary student is designed according to the author's pedagogical experience: if something not quiet ordinary occurs in a student's activity once, it might be random. However, if it happens twice, it points, rather, to a possible consistency. Such a student overexceeds every requirement for every type of coursework at least twice. Also, such a student prepares bibliography, the paper outline and the final paper that are accepted from the first attempt. This student's LM and all corresponding data are shown in the Table 1. The sum 69% is the boundary separating results of motivated students from overmotivated ones.

Table 1

The Hypothetical Students' Raw and Scaled Data

Hypothetical Students:	Raw Data				Scaled Data				
	HW	DB	RP	EF	HW%	DB%	RP%	EF%	Total
Perfectly Motivated	66	40	6	4	25%	25%	25%	25%	100%
Perfectly Unmotivated	0	0	0	0	0%	0%	0%	0%	0%
Upper Boundary	48	28	5	2	18.2%	17.5%	20.8%	12.5%	69%
Lower Boundary	44	15	0	0	16.6.0%	9.4%	0%	0%	26%

Note: HW = homework; DB = discussions; RP = research paper; EF = educational forum

On the Figure 1, the results of the C-group of students are distributed on the scale. Points 26 and 69 show the lower and the upper boundaries for results of motivated students. Twenty participants are displayed as stick-figures next to the corresponding locations on the axis with their individual LM scores on the “faces.” Most students of the C-group are motivated and located in the middle part of the scale. Three student (with their scores 70, 74 and 88) located to the right of the middle area’s upper boundary are overmotivated, and two students (with their scores 16 and 20) located to the left of the lower boundary are unmotivated.

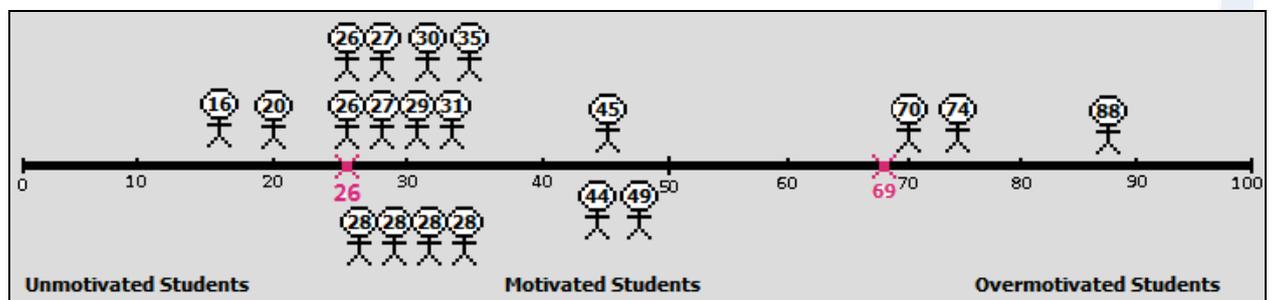


Figure 1. Graphical representation of the C-group students' scores distributed on the scale of Learning Motivation

The Results

Operational Indicators of the Major Students' Categories

Motivated students basically followed all requirements and properly did their course work.

Unmotivated students could be easily identified via their systematic violation of requirements. One indicator of their very low motivation was *late submissions of homework assignments* including *missing final research paper*. Such students were not ready to write the paper because, unlike their classmates, they lacked knowledge and skills which they had not accumulated. The other indicator was *ignoring the*

optional course activity. Unmotivated students did not even find out that such an activity was available.

Overmotivated students could be easily identified through their *submissions of the coursework in advance* (one-two-three weeks before the due dates). If there were no special circumstances for establishing such a schedule (delivery, surgery, or vacation forthcoming during the semester), and additionally, their work quality was high, then the combination of three factors served as an ultimate proof of the students' enthusiasm in learning and becoming a good specialist. Another indicator was their *active participation in the optional course activity.*

Analysis of the Investigated Population

Motivated but not outright enthusiastic students were a majority in all three investigated groups. Accordingly, they constitute a majority (73%) of the investigated population. Together with overmotivated (enthusiastic) individuals they represented an overwhelming majority (82%) of the population participated in the study. It is shown on the Figure 2.

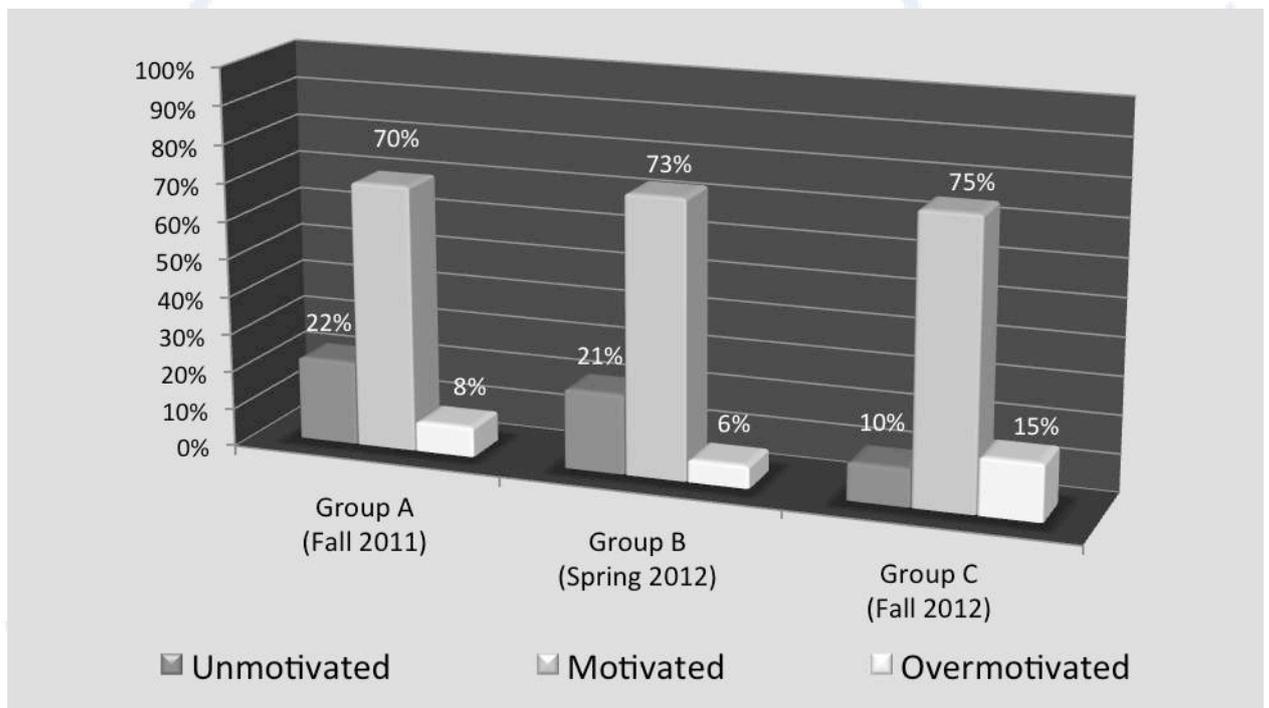


Figure2. Percentage of unmotivated, motivated, and overmotivated students in the investigated A-, B-, and C-groups during three semesters in 2011-2012 academic years.

The Correlation between LM and Academic Performance

To find out how students' academic performance depended on their LM manifested in the course, we studied the correlation of their motivation with final course grades. The Pearson's Correlation Coefficient was calculated with the use of the formula:

$$K = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

where $x = (x_1 \dots x_n)$ and $y = (y_1 \dots y_n)$ are distributions of the two chosen variables; and n is the number of students in the group (How to Compute Pearson's Correlation Coefficient).

The study revealed a high correlation coefficient $K_{LM,FG}=0.61$ between students' learning motivation and their academic achievement. Correlations are high for all three groups of students participated in the study as well. These data are shown in the Table 2.

Table 2

The Correlation Coefficient Between LM and Final Course Grades Listed by Group Type

The Correlation Coefficient $K_{LM,FG}$		
The A-group	The B-group	The C-group
0.66	0.57	0.61

The Correlations between Components of LM and Academic Performance

To clarify the nature of dependence between the students' academic performance and their LM, we studied the correlation of the final course grades with the scores in each of the four components of LM. The Pearson's correlation coefficients were calculated using formula presented above. The results of the analysis are shown in the Table 3.

Table 3

The Correlation Coefficients Between Components of Students' LM and Final Course Grades

$K_{FG,HW}$	$K_{FG,DB}$	$K_{FG,RP}$	$K_{FG,EF}$
0.61	0.51	0.74	0.46

Note. $K_{FG,HW}$ = the correlation coefficient between final grades (FG) and motivation for doing homework (HW); DB=discussions on the Discussion Board; RP = research paper; EF = educational forum.

The results show that the three components of LM representing mandatory course activities have high correlations with students' academic achievement. The correlation coefficient between final grades and students' motivation for performing the optional course activity is also positive but relatively low: $K_{FG,EF} = 0.46$. It means that academic performance and motivation to participate in the optional activity are somewhat independent.

The Standard Deviations of LM

Then it was determined if the student's performance of the optional assignment differed from performing mandatory assignments. With this purpose the standard deviations for each of the four components of LM were calculated using the following formula:

$$\sigma = \sqrt{\frac{\sum(x-\bar{x})^2}{n}}$$

where σ^2 is the variance, $x = (x_1 \dots x_n)$ is a distribution of the chosen variable, \bar{x} is the mean, and n is the number of students in the group (Weisstein, 2013). As usual, we assumed that the higher the deviation, the more is spread apart the data. We found that the optional course activity had the highest data variance $\sigma = 0.34$. The results for the C-group are presented in the Table 4.

Table 4

Scaled Scores of LM, All Its Components, and Standard Deviations in the C-group of Students

Student #	The course activities								Learning Motivation (LM)	
	Homework (HM)		Discussions (DB)		Research Paper (RP)		Educational Forum (EF)		α	β
	α	β	α	β	α	β	α	β		
1	30	0.45	14	0.35	2	0.33	0	0.00	28	0.28
2	47	0.71	33	0.83	4	0.67	3	0.75	74	0.74
3	25	0.38	22	0.55	2	0.33	2	0.50	44	0.44
4	27	0.41	17	0.43	2	0.33	0	0.00	29	0.29
5	20	0.30	14	0.35	2	0.33	0	0.00	26	0.26
6	21	0.32	17	0.43	2	0.33	0	0.00	27	0.27
7	30	0.45	20	0.50	3	0.50	2	0.50	49	0.49
8	25	0.38	20	0.50	2	0.33	0	0.00	30	0.30
9	24	0.36	14	0.35	2	0.33	0	0.00	26	0.26
10	25	0.38	17	0.43	2	0.33	0	0.00	28	0.28
11	53	0.80	36	0.90	5	0.83	4	1.00	88	0.88
12	42	0.64	18	0.45	2	0.33	0	0.00	35	0.35
13	27	0.41	20	0.50	2	0.33	0	0.00	31	0.31
14	26	0.39	21	0.53	1	0.17	0	0.00	27	0.27
15	19	0.29	14	0.35	0	0.00	0	0.00	16	0.16
16	30	0.45	27	0.68	1	0.17	2	0.50	45	0.45
17	25	0.38	16	0.40	2	0.33	0	0.00	28	0.28
18	27	0.41	15	0.38	2	0.33	0	0.00	28	0.28
19	43	0.65	30	0.75	4	0.67	3	0.75	70	0.70
20	23	0.35	18	0.45	0	0.00	0	0.00	20	0.20
	$\sigma = 0.14$		$\sigma = 0.16$		$\sigma = 0.20$		$\sigma = 0.33$		$\sigma = 0.19$	
	Standard Deviations									

Note. N= students' sequential ID-s in the study; α = the first column for representing each component of LM that shows the raw scores; β = the second column for each component of LM that shows normalized scores for the α column, so that maximum is converted to 1.0 (what makes standard deviation values comparable and convenient for computing). The last column shows the calculated Learning Motivation (LM), and its normalized value.

Reliability and Validity of the Results

In each of three semesters, the category of motivated students constituted the highest percentage (see Figure 2); it proves reliability of the result. The result reflects the fact that students enroll into educational programs for certain reasons: some have already worked in school system, some others were preparing for that, – and obtaining the Master's degree is an important step for their professional growth and career.

It was found that students' academic achievement positively correlates with their LM. The correlation coefficients are high for three groups of students studied the same subject with the same professor in different semesters (see Table 2). Similarity of this result for three consecutive semesters proves its reliability. Additionally, the result is supported by discoveries made in other studies of LM (Fortier et al., 1995; Singh et al., 2002; Broussard & Garrison, 2004; Green et al., 2006).

The issue of validity of the results is crucial to any research. When investigating LM in a new learning environment we realized that participants of our study could be differently prepared as computer users: some were experienced online learners, while some others were online beginners. It was natural to suppose that lack of special skills needed for using the Black Board could affect students' learning and interfere with the data on LM.

To prove that results obtained in this study reflected individual qualities of the students' LM rather than their status as online learners, we calculated the correlation coefficient $K_{LM,FG}$ and standard deviation σ_{LM} twice: once with the entire C-group of students, and then with on-line non-beginners only. It was found that the correlation between LM and the final course grade is slightly lower in the main population $K_{(LM,FG)_{mp}} = 0.61$ than in the subset group of non-beginners $K_{(LM,FG)_{sg}} = 0.70$; standard deviations in both the main and subset populations were identical $\sigma_{(LM)_{mp}} = \sigma_{(LM)_{sg}} = 0.20$.

According to this data, online non-beginners in the C-group did not actually change the picture. Their computer skills, whether sufficient or not, practically did not affect their LM. Now, we are continuing to verify the validity of the results for entire students' population.

Discussion

Two components of students' LM – grade-oriented and knowledge-oriented – were found in our study and received names *pragmatic* и *cognitive*. In essence, they link back to the familiar *intrinsic* and *extrinsic* motivation. Although for our specific study terms *cognitive* and *pragmatic* seem to be more adequate. This result is consonant with some other authors' ideas about the content of LM (Csikszentmihalyias, 1975; Whitney & Hirsch, 2007).

The components are co-existing, interrelated, and both are necessary for fruitful learning. However, unlike the pragmatic motivation that everybody (even unmotivated students) had, the cognitive motivation was noticed in a few. The ratio of the grade-oriented students to those who were both grade- and knowledge-oriented was approximately 3:1 (see α column for Educational Forum in Table 4). Indeed, many participants ignored the optional educational forum offered in the online course considering it a waste of time; they neglected it because the activity was not rewarded. Pragmatic interests prevailed in them, and their main guiding principle was maximizing the grade and avoiding learning that did not contribute to the grade. Oppositely, some other students performed the optional assignment because they wanted to receive knowledge relevant to their professional interests even if it was not rewarded. Like everybody they appreciated grades, but curiosity had a higher priority for them.

The optional activity had the highest variance $\sigma = 0.33$ (see Table 4). It means that the students differed from each other much more in cognitive LM than in pragmatic LM. This is understandable because cognitive LM is a less frequent phenomenon. The explanation is analogous to A. Maslow's interpretation of the hierarchy of motives. Physical needs (for food, shelter etc.) and the need for safety are located at the bottom of the hierarchy and are applicable to everyone. The more spiritual a motive is, the higher it is located, the less frequent it is. Thus, the motives for self-actualization or knowledge are a privilege of a few (Maslow, 1970). Similarly, the cognitive component of LM, as non-materialistic and spiritual by its nature, is at a higher position in the structure of LM and exhibited by a few.

The students' final grades highly correlated with their LM (see Table 2). However, a further analysis of the data showed that the dependency was only unidirectional. That is, highly motivated students tended to have good grades, but a good grade did not always indicate a high LM. According to our online course policy, for being successful it was enough to follow the instructions, meet requirements, and timely provide correct and informative mandatory assignments. That's why students lacking cognitive LM also could have good grades.

Three categories of students – unmotivational, motivational, and overmotivational – differed in intensity of their motivation. The more complex LM was the stronger it was. Students combined pragmatic and cognitive types of LM had the higher scores on the scale.

Unmotivated students constituted 17% of the investigated population (see Figure 2). They turned out to be poorly adjusted to a new learning environment and had no ability or desire for acquiring new learning skills; their enrollment into this online course was probably a mistake. A more detailed analysis of this category of students can be found in another paper by the author (Toom, 2013). *Overmotivated* students constituted 10% of the population. They were enthusiasts: cognitively active, curious, and eager to get knowledge without being encouraged or rewarded.

Motivated students constituted an overwhelming majority 73% of the population. However, about 2/3 of them were primarily pragmatically oriented in their learning: they performed only the coursework for which they were graded and ignored optional activities offered for their professional growth.

Actually, an attitude found in many our students corresponds to the values of modern society: «time is money», and people prefer not to spend their time and effort on anything that does not bring immediate profit (USA – Language, Culture, Customs and Etiquette). The question still arises if this philosophy is appropriate for an educator.

Beginning in the early 1990's in the American educational periodic and on educational forums in the electronic networks, specialists have been actively discussing failures of national primary school education. Conducting the cross-cultural research, scholars repeatedly state the American school students' poor preparation in natural disciplines, especially, math (Stigler & Hiebert, 1999). In the recent years, there appeared articles about school students' underachievement in other subjects as well (Hood, 1993; Albada, 2010; Report: Half of U.S. Schools Fail Federal Standards, 2011; Crotty, 2012; Khazan, 2012).

Considering the results of this study in a wider socio-cultural context, the author suggests that the issues of teachers' motivation can, possibly, be tied to the much discussed failures of the US primary school education. We cannot exclude a probability that one of the causes of school students' poor preparation in various disciplines is a shortage of cognitively motivated enthusiastic instructors.

Conclusions

The method of analysis of online students' motivation through their learning activity and products of their intellectual labor had shown to be fruitful. Therefore, the distance learning programs have a great potential for the study of LM.

Two different, interrelated, and co-existing components of LM observed in the study link back to the familiar *intrinsic* and *extrinsic* motivation. Students' LM within the context of online learning environment was found to have the nature similar to that which was described by the theorists and explorers of traditional class settings.

Motivated and overmotivated participants constituted an overwhelming majority of the total investigated population. They were responsive, responsible, and successful individuals. However, most of them were pragmatically motivated learners. The author suggests that the shortage of enthusiastic teachers can be one of the possible causes affecting today's school students' academic performance. In either case, a further study of teachers' motivation seems to be a promising scientific direction.

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Human Performance Technology in ICT of Thai Higher Education Lecturers

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Abstract

The research study was conducted to develop human performance technology in of Thai Higher Education Lecturers under three conceptual frameworks: input, process, and outcome. The input consisted of information and communication strategic plans of Thailand, those of the Ministry of Education and universities, and performance of organizations and their personnel. The process referred to the analysis of the input data. The outcome meant technology for developing human performance of tertiary lecturers, which covered analysis, design, development, drive of success and change management, and evaluation. The samples of the study were seven administrators of Rajabhat Universities (Southern region). The data from the in-depth interview were synthesized for the model development, which was evaluated by seven specialists afterwards.

Keywords: human performance technology, ICT performance, higher education

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Introduction

Owing to the changing roles nowadays, lecturers should improve their ICT performance with constant assistance and support from the institutes for more efficient class organization and learning confidence of the students as shown in figure 1.

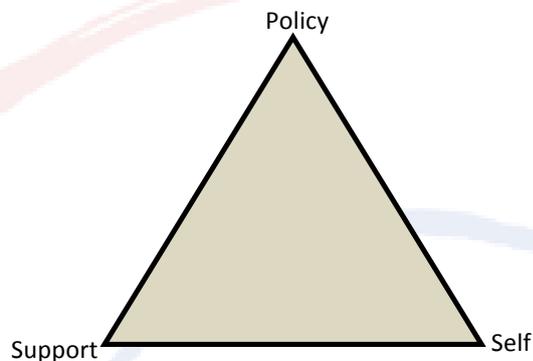


Fig 1 Personnel Development Relation

The figure demonstrated that organizations or universities had to develop personnel performance so as to demolish obstacles causing the lack of the organizations' performance (James A. Pershing, 2006, p. 573), or as called, a low level of capability achievement or quantitatively evaluated capability, performance outcome and its valuable effects on the organizations (Jerry W. Gilley and Ann Maycunich, 2000, p.179, Swanson, Gilbert, 1978). To develop ICT performance, elements of ICT working performance including working process, knowledge, skills, qualifications, resources, personnel, policy and operating systems should be considered. Meanwhile, personnel or lecturer development should also be involved for their effective use of ICT in organizing their class (James S. Pershing, 2006, p. 573).

Research Objective

The purpose of the research study, therefore, was to find out a guideline on personnel development plan, and effective ICT development policy and strategy. Concept of technology for human performance development was a systematic method, which connected personnel, strategy and goals of organizations including changes in learning and training environment and motivation system as a result of problem and opportunity analysis. Causes and effective methods of corrected performance should be stated and used for positive improvement of both personnel and organizations (Rothwell, 1996b, 5, cited in Jerry W. Gilley and Ann Maycunich, 2000, p.179).

Research Methodology

1. Population Identification and Sample Selection

1.1 Population referred to administrators from Rajabhat universities (Southern region), namely Nakhon Si Thammarat Rajabhat University, Phuket Rajabhat University, Suratthani Rajabhat University, Songkhla Rajabhat University and Yala Rajabhat University.

1.2 Seven research samples selected from southern Rajabhat universities

2. Research Instrument Development

The instrument used in the study was interview form, developed from the study of ICT strategic plans of Thailand, those of the Ministry of Education and the five Rajabhat universities (Southern region). Theory and literature related to human performance technology were reviewed. Questions were finally synthesized and identified based on the above strategic plans, theories and related researches.

3. Method

The first step of the research study was the input study. After that the first draft of research instrument was developed, submitted to the advisor and corrected as suggested. After the submission and correction of the second draft, the interview process was operated. The data received from the interview with the administrators were synthesized based on the theories and related researches. The developed model, however, should be related to and appropriate with Rajabhat university (Southern region) contexts, and should also be evaluated by human performance technology and personal development specialists from different sectors.

Result

Table1: The experts' opinions on the model to develop human performance in information technology and communications of Thai higher education lecturers

Agree ✓ Disagree ×

Issue /Experts	1	2	3	4	5	6	7	Recommendations
Analysis of actual state and expected state of personnel performance elements <ul style="list-style-type: none"> • Skill 	✓	✓	✓	✓	✓	✓	✓	There should be an analysis on performance information technology and communications related to teaching and learning. This included the use of information and communication technology for integrated learning, the use of information and communication technology as a tool to develop and facilitate learning, the use of information and communication technologies for their own performance development, and the use of information technology and communications as a communication channel.
<ul style="list-style-type: none"> • Knowledge 	✓	✓	✓	✓	✓	✓	✓	
<ul style="list-style-type: none"> • Attribute 	✓	✓	✓	✓	✓	✓	✓	
Intrinsic motivation <ul style="list-style-type: none"> • Raise career awareness. 	-	-	✓	✓	✓	-	-	This was an important point. The university and lecturers should analyze the motivation and recruitment factors causing intrinsic motivation. Most experts agreed on the motivation of personnel within the perceived benefits of using Information and Communication Technologies. Moreover, the university identified information technology and communication as a
<ul style="list-style-type: none"> • Recognize the benefits of using information technology and communications. 	✓	✓	✓	✓	✓	✓	✓	

technology as indicators for individual competency.									
Analysis of actual state and expected state of organization performance elements									SWOT analysis conducted by the university should contain information about the level of individual lecturer performance or a progress rate of individual lecturer for future development as an explicit policy. The leader should initiate the using of information technology and communications for other personals to followed. The university should facilitate supportive factors of 5 information technologies infrastructure including standard equipment, software, standard network, human resources, and a considerate of tangible and intangible incentives to encourage the using of information technology and communications.
• Policy	✓	✓	✓	✓	✓	✓	✓		
• Leader	✓	✓	✓	✓	✓	✓	✓		
• Infrastructure	✓	✓	✓	✓	✓	✓	✓		
Design									The level of performance in information technology and communications should be considered. The university should consider the level of performance criteria and facilitate supportive factors, i.e., tangible incentives such as prize, reward, remuneration, bonus awards for innovative work practice, etc., and intangible incentives such as prestige announcement through the university’s website or in the university board meeting, additional pointed in workload assessment, trophy, etc.
• Identified performance	✓	✓	✓	✓	✓	✓	✓		
• Infrastructure	✓	✓	✓	✓	✓	✓	✓		
• Tangible incentives	✓	✓	✓	✓	✓	✓	✓		
• Intangible incentives	✓	✓	✓	✓	✓	✓	✓		
Development									The expert agreed on the using of training starting by encouraging an awareness of a policy in assessing performance, the benefits of the using of information technology and communications, and study tour to the model university that employed effective IT system. There should be an evaluated to see the progress after training.
• Alert	✓	✓	✓	✓	✓	✓	✓		
• Training	✓	✓	✓	✓	✓	✓	✓		
Drive of success and change management									The mentor was the one who driveed the change by transferring knowledge such as training, giving consultation, suggestion, and demonstration. There should be an incentive for the mentor team to developing staffs’ IT performance.
• Mentor	✓	✓	✓	✓	✓	✓	✓		
• Knowledge transfer	✓	✓	✓	✓	✓	✓	✓		

figure 2 was comprised of (1) Analysis, (2) Design, (3) Development, (4) Drive to success and change management, and (5) Evaluation.

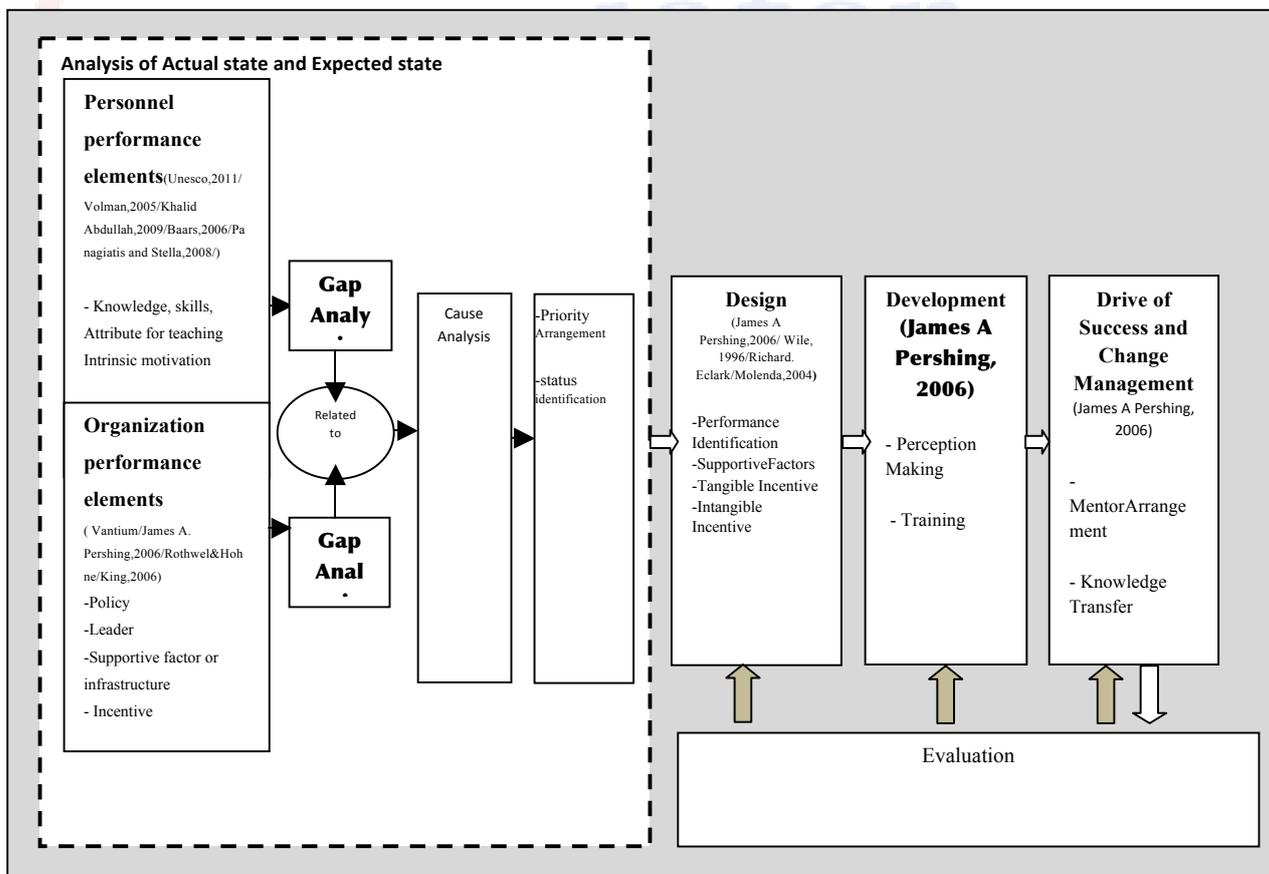
The analysis covered current and expected performance analysis, gap analysis, cause analysis, priority arrangement and status identification.

The design process, including performance identification, supportive factors, tangible incentive, and intangible incentive, produced a method in filling gaps from analysis findings, which should be compatible with capability and policies of the organizations as well as needs of the lecturers.

The development process was completed for the development of lecturers through methods, which were appropriate with the lecturers and the university context like perception making and training.

The drive to success and change management step, which covered mentor arrangement and knowledge transfer, was operated for the changes of the universities.

The evaluation focused on the examination of performance development outcome through formative and summative evaluations



DISCUSSION

Technology model for developing ICT performance of tertiary lecturers developed for effective class management consisted of analysis, design, development, drive of success and change management, and evaluation. The element in each step was related to theories and many researches such as the relation between the analysis and gap analysis of Fred as shown in figure 3 Fred Nickols (2010, p.3-p.4).

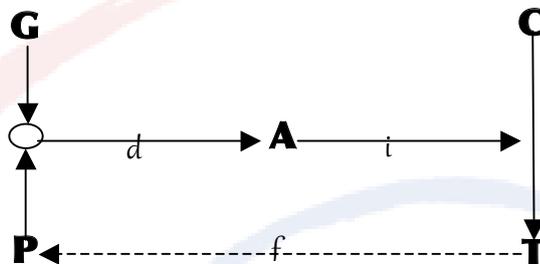


Fig 3 Gap Analysis Model of Fred Nickols (2010, p3-p4).

According to Fred Nickols (2010, p3), G (Goal) was expected performance, P (Perception) was the perception of current status, black circle between G and P was discrepancy between goal and status perceived by the personnel, D (Discrepancy) led to A (Act) for solving problems or connecting G (Goal) and P (Perception) through I (Intervention) for target completion. To achieve the target, C (circumstances) or appropriate management of related circumstances such as environment, equipment and administrators' support was employed. Personnel of the organizations would receive F (feedback) on the status of organizations or universities after the Target (T) result found. Moreover, other elements, including design, development, drive of success and change management were all related to Chevilier's concept, which defined specific qualifications of human performance development technology (Chevilier, 2004 cited in James A. Pershing, 2006.) as follows: (1) human performance Technology focused on the outcome, (2) human performance technology used system perspective, (3) human performance Technology added values, (4) human performance technology produced cooperation, (5) human performance technology was a need and opportunity evaluation system, (6) human performance technology was a system used to analyze performance and identify causes or factors, limitations and performance, (7) human performance technology was a system used in designing problem solutions, (8) human performance technology was used in developing solution methods either for overall or partial problems, (9) human performance technology was used in problem solution process, and (10) human performance technology was used in process and outcome evaluation.

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The Effect of Game Design on Game-Play Time and Learning Outcomes

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Abstract

In this paper, we investigate the effect of the design of a social studies mobile game on game-play time and learning outcomes of ninth-grade students. This social studies game-based curriculum involved 41 and 36 ninth-grade students in the first and second intervention studies using a mobile game played on Apple iPhones- *Statecraft X*- to engage in governorship practices in the game world and in the classroom. After the first intervention, modifications in game design were made to promote more collaborative learning, and to encourage students to use diplomatic strategies in the game. Survey data concerning social cohesion, diplomacy, power, agency, collaboration, and game-play time were collected from the intervention at the end of each intervention. Students from both intervention and comparison groups were also asked to write an essay that was subsequently assessed by the criteria of relevance, perspective, and voice. The results indicate that as a result of the change in game design, students spent more time playing the game. Students also showed positive shifts towards collaborative learning. There were significant effects of game design on social cohesion. There were no significant differences in the quality of student work between students in the first and second intervention studies. However, the differences in quality of student work between the second intervention and control groups were more significant than those between the first intervention and comparison groups. This paper will discuss the importance of adjusting the game design of serious games to enhance educational outcomes in the school curriculum.

INTRODUCTION

Scholars, educators, and media designers are interested to know how digital games might contribute to learning in the school context. Although digital games have been held up for their educative purposes (e.g., Gee, 2003; Prensky, 2001; Squire, 2006), there has been little empirical evidence that digital games result in better academic learning outcomes. This study is an attempt to fill the gap. The purpose of this paper is to examine the effect of the design of a digital game on gameplay time and learning outcomes in ninth graders.

Games and Learning

Games are used to help learning for main reasons: (a) motivation, (b) content mastery, as well as higher order thinking skills and (c) social skills (Jan, 2013). In schools, games are commonly used to address the challenge of motivating students to engage in learning. Indeed, prior research has supported the efficacy of games for enhancing and continuing student motivation (e.g., Malouf, 1988; McDonald and Hannafin, 2003).

However, it may be asked if students are learning while they are having fun. A prevalent concern is the extent to which game-playing enhances content mastery. In this regard, results are mixed. For instance, in a review of research published from 1984 to 1991 on the instructional effectiveness of the use of games in classrooms compared to instruction in conventional classroom, Randel, Morris, Wetzel, and Whitehill (1992) found that there were no differences in the post-tests between experimental and control groups. Similarly, McDonald and Hannafin (2003) found that there were no significant differences between third graders using a web-based computer game for reviewing social studies material compared to their counterparts using more traditional methods. However, Randel, Morris, Wetzel, and Whitehill (1992) found that their subjects were able to retain their material over a longer time period, with gains in learning favoring the experimental group at a delayed post-test.

Besides content mastery, researchers have identified critical skills for the twenty-first century such as problem solving, collaboration across networks and leading by influence, plan formulation and execution, adaptability, communication, and curiosity and imagination (Federation of American Scientists, 2006; Wagner, 2010). In addition to the acquisition of subject knowledge that digital games can support, parents appreciate the acquisition of other types of knowledge such as computer literacy, logical thinking, and hand-eye coordination, and perseverance (MacFarlane, Sparrowhawk, and Heald, 2002). They believe these are skills that their children will develop as a result of playing computer games.

The kinds of games that have gained greatest currency in schools are those that allow for students to undergo “drill and practice” exercises while having fun at the same time. Concomitantly, there is a significant body of research that has investigated the benefits in improving content mastery and motivation, as suggested above. This is to be expected, given that these are dominant concerns of educators in schools. However, using games to promote twenty-first century learning in school has been far more challenging.

In a review of 48 articles on the effectiveness of instructional games, Hays (2005)

found that an instructional game will only be effective if it is designed to meet specific instructional objectives and used as it was intended. Jan (2013) noted that games designed for twenty-first century learning are no longer the same games when they are used in the classroom. For instance, players revert to being students and are not allowed to play the game in their own playing styles. Moreover, instead of using information in the games designed for problem-solving, they tend to be encouraged to memorize them as they typically do as students. Echoing Hay's (2005) point for alignment between game design and use, Jan (2013) suggests that game design principles can be used to turn the classroom itself into a game for twenty-first century learning.

In this study, we investigate how changes in a mobile game designed for the learning of governance, situated in a game-like classroom and online environment where all participants, including the teacher engage in fictional role-playing, affect game-play time and the learning of twenty-first century skills. Specifically, we examine the effect of game design on participants' written argumentation, a key twenty-first century skill, in terms of their ability to advocate relevant solutions to the problems in ways that reflect multiple perspectives and their personal voice. We also investigate the effect of game design on participants' values and attitudes towards collaboration, social cohesion, agency, and power.

***Statecraft X* and Learning**

The present study based on *Statecraft X*, a collaborative mobile game, supports a constructivist learning environment. Collaborative work can provide students the learning environment to leverage on their strengths, learning styles, skills, preferences, and perspective. In addition, working collaboratively also provides students the opportunity to participate in a community of practice, learning from each other through apprenticeship as a governor and education (Lave and Wenger, 1991).

Statecraft X also allows students to learn by experiencing for themselves and discovering their own meanings from their experiences. It allows them to play the game, reflect on the situation to form strategies, and then further investigate what effect their action has. It thus reflects Kolb's experiential learning cycle (Kolb, 1984). In addition, the learning materials supporting *Statecraft X* provide the link from the game world to the real world.

Hypotheses

We hypothesized that game design has an effect on game-play time and learning outcomes. We examined (a) game-play time, (b) quality of student work in terms of relevance, perspective, and personal voice, (c) values such as diplomacy, agency, social cohesion, power, and collaboration in ninth-grade students in order to better understand how game design influences these factors.

METHOD

Participants

Forty-one students (17 boys and 24 girls) participated in the first intervention study. One student was absent for the post-intervention survey administered to both intervention and comparison classes. Thirty-six students (14 boys and 22 girls) participated in the second intervention study. Two students from the second intervention study were absent in the collection of post-intervention survey and writing task data. The first group of students was in top class of the Express academic track while the second group of students belonged to the lower end of the Express academic track in the same school. On average, they were 14 to 15 years of age. Three social studies teachers participated in our study. One of them participated in both interventions. The school requested that one teacher was changed for the second intervention study so that more teachers in the school could experience the pedagogy of game-based learning.

For the first comparison group, there were 42 students (27 boys and 15 girls); for the second, 39 students (28 boys and 11 girls). However, one boy in the second comparison group completed the survey data but did not write the essay.

Materials

Apple iPhones with the installed *Statecraft X* game were loaned to all students who took part in the *Statecraft X* curriculum for the duration of the research intervention. *Statecraft X* was designed based on principles of governance in the ninth-grade social studies curriculum.

Teams competed against one another in this multiplayer strategy game to rule the fantasy kingdom of Velar populated by the four races of sentient beings. At the beginning of the game, the ruler of Velar passed away without leaving an heir, thus setting up the stage for different student governor-led political factions to compete for leadership of the kingdom.

The first game objective is that all the teams must collaborate to ensure that their kingdom, Velar, survive in the face of attackers from other kingdoms. Second, individual teams must consolidate their power and position by winning the trust of the people in their own towns and also the people in the towns of other teams. This game aims to allow students to think as governors and thus appreciate the complexity of the task of nation-building. To realise these two objectives, faction members must realise short-term goals such as developing towns under their control, diffusing internal and external threats as well as maintaining diplomatic ties with factions within Velar and with neighboring kingdoms.

The game-play timings were set to accommodate the wishes of the school management. On weekdays, students could log in from 6 a.m. to 8 a.m., and from 2 p.m. to 10 p.m. On Saturdays, students could log in from 6 a.m. to 11 p.m.

In addition to the game world of Velar, students were also given materials from the fictional world of Bellalonia in which students were situated. The teacher, who

role-played the Grand Sage of Bellalonia, was provided with questions to elicit students' opinions about different aspects of governance. During the first lesson, students were given their final assignment where they, as fictional governors, had to solve problems in Bellalonia, a country formed a hundred years ago and populated by the ethnic group of Solians. Fifty years ago, the ethnic group, the Milous, immigrated from a neighbouring country in search of a better life. The Milous were hardworking and prospered in Bellalonia. The Solians, unhappy because they felt that they were entitled to the riches arising from the land, emigrated from Bellalonia. With the death of the old king, the subjects of Bellalonia thought that the monarchy could be changed to a democracy. The Grand Sage of Bellalonia had to choose governors in Bellalonia to form a council to help the young king who was not of age. The sage sent them to the game world of Velar where they faced challenges of governance. The following were the problems that the fictional governors had to solve: (1) high tax rate, (2) high unemployment rate, (3) high emigration, (4) low economic growth due to lack of resources and money, (5) political instability due to the death of the old king, (6) health epidemic of tuberculosis and malaria, (7) lack of education for new jobs, and (8) racial tensions between the majority and minority ethnic groups.

A web-portal was also set up to provide a space for students to be informed of events happening both in the game and fictional worlds. It was situated in Bellalonia so that students could role play as governors and offer opinions in a non-threatening context. Additional materials from the real world were provided to help students consider experiences from real world countries. These provided students with additional perspectives of governance beyond the game and the textbook.

The above materials were tied to the Play-between-Worlds curriculum model (see Figure 1). Students learn by "moving" from one world to another, and also by reflecting on their experience in the three worlds: game, fictional, and real.

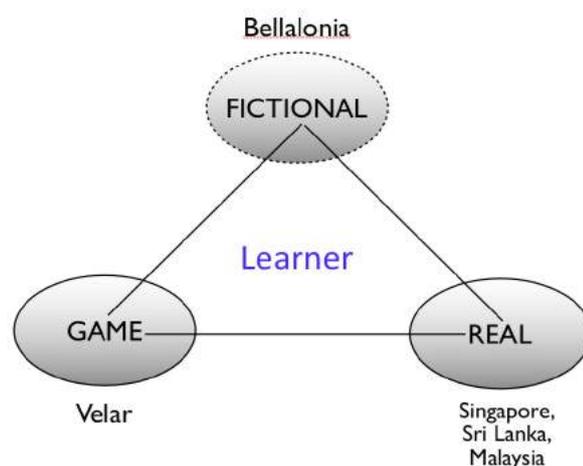


Figure 1. A Play-between-Worlds curriculum model.

The primary difference between the game design of the first and second interventions was the positioning of the game at the beginning of the lesson. In the first intervention, the winning team was positioned as the team that captured the capital city of Velar before the invasion of Salfreda. However, in the second intervention, the team that won was the team that had the highest composite score of average happiness of citizens in a faction, economic score (profit), and population levels in the

towns under their charge. The third author posted score charts on the *Statecraft X* website.

Another difference was that in the first intervention, the team members in each team did not share a pot of money given to the team; each team member managed their own funds, whereas in the second intervention, team members had to share a pot of money to encourage collaboration among team members as they had to discuss strategies in using the limited pool of money.

The third change in game design was the encouragement of the use of diplomacy instead of force to take over towns. Students were given the opportunity to organize a rally to win over the towns' citizens.

Instruments

We designed Survey 1 to examine the game-play time and collaboration perceptions of students in the two intervention classes. We designed the 18 survey items in Survey 2 for four constructs: (a) valuing social cohesion; (b) allowing diplomacy over unthinking use of force, (c) recognizing that government power is inextricably bound to responsibility, and (4) possessing agency, as a citizen, to influence a nation's present and future. We coded the students' responses with the numbers 1 to 6 corresponding to the responses 'Strongly Disagree', 'Disagree', 'Somewhat Disagree', 'Somewhat Agree', 'Agree', and 'Strongly Agree'. We designed a writing task for the intervention students who were graded on relevance of content, perspective, and personal voice.

Procedure

Prior to each research intervention, the teachers participated in a two-day professional development workshop designed to prepare them for the enactment of the *Statecraft X* curriculum. They were given the *Statecraft X* game to play and were shown the *Statecraft X* curriculum. They gave feedback on the lesson plans designed and worked with the research team to finalize the in-class and outside-classroom activities of the learning programme.

The class was divided into two groups for game-play as well as whole class discussions. Each teacher was in charge of one group. During the first session, the two groups of students were together in one computer laboratory. During the subsequent five sessions, the two groups were located in two separate computer laboratories.

All lessons were video-recorded. In the lead teacher's classroom, one video camera recorded the general classroom. One video camera was focused on three groups in the lead teacher's classroom. In the second teacher's classroom, one video camera recorded classroom activities.

Lesson 1

During the first of six lessons for each intervention, the research team administered a pre-test before the teacher explained to the students the Play-between-Worlds

curriculum model using the powerpoint slides provide by the research team. She also explained the history of Bellalonia and the current problems in Bellalonia. She gave out the final assignment of the *Statecraft X* programme which was a written speech that assesses the learning of principles of governance based on their in-class and outside-classroom experiences in the game, fictional, and real worlds. During the latter part of the first lesson, the game designer of *Statecraft X* game also presented the backstory of the game world of Velar and showed students the various actions that they could take in the game. At the end of the first lesson, iPhones were distributed to all participating students.

Lessons 2 to 5 in First Intervention

During the next four sessions of the first intervention, activities were conducted to complement the game. Teachers facilitated discussions about game-play so that students could draw lessons from their game-play. They encouraged students to draw upon the game and real world to propose solutions for the fictional world of Bellalonia.

Lessons 2 to 6 in Second Intervention

During the next four lessons for the second intervention, for the first thirty minutes of the lesson, students typed their individual responses to a series of questions related to Velar, Bellalonia, and the real world. In the last thirty minutes, the teacher gathered students in a circle at the front of the class and discussed their responses to these questions.

Lessons 6

During the final lesson, five students from each group presented their speeches in front of their groups. The teacher conducted a final discussion and the research team then administered a post-intervention survey (Survey 1) with questions on game-play time and collaboration.

Post Lesson 6

After the last lesson in each intervention, the first author administered a survey (Survey 2) and an essay in both interventions. Students were given thirty minutes to respond to the 18-item survey and write an essay.

Data Analysis

The data sources were (a) post-intervention Survey 1 data from intervention groups, (b) post-intervention Survey 2 data and essays from both intervention and comparison groups. For Survey 1, the survey questions on collaboration, and game-play time were compared between first and second intervention groups using *ANOVA*.

For Survey 2 data and the essays, the *ANOVA* was used to compare results between the first intervention and comparison groups, and between the second intervention and comparison groups. Table 1 summarizes the data sources, dependent measures, and analysis strategies used to answer the two research questions of this paper.

Table 1
Alignment of Research Questions, Data Sources, Dependent Measures, and Analysis Strategies

Research question	Data source	Dependent measure	Analysis strategy
Does game design have an effect on game-play time?	Survey 1	Time spent per week in game-play	<i>ANOVA</i>
Does game design have an effect on learning outcomes?	Written speech	Relevance, perspective, and voice scores	<i>ANOVA</i>
	Survey 2 on values	Scores on the constructs of social cohesion, power, diplomacy, and agency	<i>ANOVA</i>
	Survey 1	Collaboration	<i>ANOVA</i>

Essay Scores

The first and second authors assessed (a) relevance, (b) perspective, and (c) personal voice (see rubric in Appendix 1). Relevance refers to how relevant the policies proposed by a student are to the social and economic needs of the different segments of the country's population and whether this student has given examples from both traditional and non-traditional sources to support his or her proposed policies. Perspective refers to whether a student could give multiple perspectives to the proposed policies and integrate them or whether he could only give the textbook perspective. Personal voice refers to the voice used by a student and whether it matched the situation, how authentic the voice was, whether opinions were well-defined and detailed, whether she communicated strong feelings and honest statements, and whether she showed that she cared about the topic.

The first and second authors assessed each essay separately and awarded a mark for each criterion. They both hold graduate degrees and had at least eight years of teaching experience in Singapore schools, and were part of the *Statecraft X* research team. The first author also had three years of experience in an improving teachers' assessment literacy research project where she trained teachers to assess student work based on a scoring guide and exemplars of student work during assessment workshops. She also acted as an adjudicator during score resolution sessions if two teams of teachers gave different scores to the same student work. After having assessed all essays separately, they came together to moderate the marks for each criterion in each essay. When there was a discrepancy between the mark given by the first and third authors, they compared the features of the essay with the benchmark performance given in the scoring guide and discussed why the student should be

awarded a certain score. They considered any evidence that challenged the original scores and achieved a consensus score. They then assigned this consensus score for each criterion.

The results of Johnson et al.'s (2005) study suggest that when scores differ between two raters, discussion as a core resolution method is the best method compared to the averaging of two scores. Johnson et al. (2005) reported that for the use of an analytic rubric for grading essays, the scores arrived at after discussion between two raters were closer to expert-criterion scores than averaged scores between the two raters. To calculate exact and adjacent agreement between the first and second authors, we transformed the students' scores to the level scores as indicated in the analytic rubric, i.e., scores of 1-5, 6-10, 11-15, and 16-20 were transformed to level scores 1, 2, 3, and 4 respectively.

RESULTS

Game-Play Time

In the first intervention, the mean game-play time was 12.09 hours per week and the mean game-play time was highest at home (see Table 2). In the second intervention, students reported spending significantly more time playing the game in all the spaces than in the first intervention. The assumption of homogeneity of variance is violated; therefore, the Welch F -ratio is reported. There was a significant main effect of the type of intervention on total game-play time $F(1,56.37) = 8.30, p = .006$; and game-play time in the spaces of home, $F(1,74) = 4.23, p = .043$; school, $F(1,42.09) = 7.07, p = .048$; mall, $F(1,40.37) = 10.41, p = .002$; and walking $F(1,56.15) = 4.07, p = .048$.

Table 2
Mean Hours Spent per Week across Spaces Students in First and Second Interventions

Space	Intervention			
	First (<i>n</i> =40)		Second (<i>n</i> =36)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Home	7.64	8.34	12.46	11.92
School	1.74	2.19	4.78	6.52
Bus	1.14	2.19	1.73	2.20
Walking	0.59	1.18	1.35	1.96
Car	0.47	0.90	1.08	2.38
Eating out	0.37	0.70	.94	1.23
Mall	0.14	0.41	.92	1.40
Total	12.09	12.32	23.37	20.37

Quality of Student Work

Table 3 shows the distribution of scores given to students in the first and second intervention groups by the two raters. The exact and adjacent agreement rates between Raters A and B for the first intervention study were 93%, 100%, and 78% for relevance, perspective, and voice, respectively, while the exact agreement rates were 59%, 54%, and 37%. For the second intervention study, the exact and adjacent agreement rates between Raters A and B were 85%, 97%, and 94% for relevance, perspective and voice, respectively whereas the exact agreement rates were 47%, 65%, and 41%, for relevance, perspective, and voice, respectively.

Table 4 summarizes the results of the study for the variables relevance, perspective, and voice in the first intervention and comparison groups. Levene's test of homogeneity of variance showed that the variances were not homogeneous for relevance of content and perspective. Thus, the Welch test was used for these two dependent variables. There was no significant main effect of type of intervention on relevance of content.

Table 3
Comparison of Frequency of Scores of Raters A and B across Intervention

Score	Intervention 1		Intervention 2	
	Rater A	Rater B	Rater A	Rater B
Relevance				
Level 1	7	5	1	3
Level 2	14	12	2	9
Level 3	14	18	23	22
Level 4	6	6	8	0
Perspective				
Level 1	4	6	0	0
Level 2	11	8	6	5
Level 3	22	19	21	28
Level 4	4	8	7	1
Voice				
Level 1	2	2	0	0
Level 2	11	7	4	6
Level 3	14	19	12	21
Level 4	14	13	18	7

Table 4
Summary of Means, Standard Deviations, 95% Confidence Intervals for Scores on Relevance, Perspective, and Voice in First Intervention and Comparison Groups

Variable	Intervention 1 (n = 41)				Comparison 1 (n = 42)			
	M	SD	95%CI		M	SD	95%CI	
			LL	UP			LL	UP
Relevance	11.07	4.20	9.75	12.40	5.55	2.73	4.70	6.40
Perspective	11.46	3.89	10.23	12.69	6.02	2.91	5.12	6.93
Voice	14.44	3.14	13.45	15.43	8.40	3.29	7.38	9.43

Note. M = mean; SD = standard deviation; CI = confidence interval; LL = lower limit; UL = upper limit.

Table 6 summarizes the results of the study for the variables relevance, perspective, and voice for the second intervention and comparison groups. The means of all the variables are at least two times higher in the second intervention group compared to the second comparison group.

A further analysis of the data revealed that the mean differences between the second intervention and comparison groups in relevance, perspective, and voice were highly significant at $p < 0.001$ (see Table 7). Thus, the quality of students' essays in the second intervention group was significantly higher with respect to each criterion of assessment: relevance, perspective, and voice. The effect sizes of the variables of relevance, perspective, and voice were also very large at 0.598, 0.661, and 0.431, respectively. That is, the differences between students in the second intervention and comparison groups were significantly large.

Table 5
Summary of the *ANOVA* Analysis of Quality of Student Work between First Intervention and Comparison Groups

Variable		Sum of Squares	df	Mean Square	F	p	η^2
Relevance	Between Groups	633.44	1	633.44	50.74	< .001*	.385
	Within Groups	1011.19	81	12.48			
	Total	1644.63	82				
Perspective	Between Groups	613.89	1	613.89	52.17	< .001*	.392
	Within Groups	953.17	81	11.77			
	Total	1567.06	82				
Voice	Between Groups	755.45	1	755.45	73.00	< .001*	.474
	Within Groups	838.22	81	10.35			
	Total	1593.66	82				

Note. *df* = degree of freedom; η^2 = eta squared or effect size.

As can be seen from Tables 5 and 7, the effect sizes for two of the dependent writing measures, relevance of content and perspective of the second intervention and comparison groups were bigger than those found in the first intervention and comparison groups.

Table 6
Summary of Means, Standard Deviations, 95% Confidence Intervals for Scores on Relevance, Perspective, and Voice in Second Intervention and Comparison Groups

Variable	Intervention 2 (n = 34)				Comparison 2 (n = 38)			
	M	SD	95%CI		M	SD	95%CI	
			LL	UP			LL	UP
Relevance	12.09	2.82	11.00	13.07	4.38	3.38	3.29	5.48
Perspective	12.32	2.20	11.56	13.09	4.44	3.38	3.34	5.53
Voice	14.00	2.98	12.96	15.04	6.46	4.94	4.86	8.06

Note. M = mean; SD = standard deviation; CI = confidence interval; LL = lower limit; UL = upper limit.

Table 7
Summary of the *ANOVA* Analysis of Quality of Student Work between Second Intervention and Comparison Groups

Variable		Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2
Relevance	Between Groups	1077.98	1	1077.98	101.12	< 0.001*	0.598
	Within Groups	695.97	71	9.80			
	Total	1773.95	72				
Perspective	Between Groups	1130.09	1	1130.09	132.78	< 0.001*	0.661
	Within Groups	593.03	71	8.35			
	Total	1723.12	72				
Voice	Between Groups	1032.25	1	1032.25	51.43	< 0.001*	0.431
	Within Groups	1219.69	1	17.18			
	Total	2251.95	72				

Note. *df* = degree of freedom; η^2 = eta squared or effect size.

Collaborative Learning

Table 8 shows the response of students to the post-intervention survey questions regarding collaborative learning. They responded to the likert scale of 1 to 6 (1 = Strongly Disagree, 6 = Strongly Agree). The single significant main effect of intervention was the survey question “Teamwork helps me think better” although the mean of all responses showed positive shifts towards collaborative learning (see Table 9).

Table 8
Summary of Means, Standard Deviations, 95% Confidence Intervals for Survey Questions on Collaborative Learning in First and Second Intervention Groups

Survey question	First Intervention (<i>n</i> = 41)				Second Intervention (<i>n</i> = 36)			
	<i>M</i>	<i>SD</i>	95%CI		<i>M</i>	<i>SD</i>	95%CI	
			<i>LL</i>	<i>UP</i>			<i>LL</i>	<i>UP</i>
CL1: I enjoy learning more, on my own than in a team.	3.83	1.20	3.44	4.21	3.64	1.33	3.19	4.09
CL2: I know how to work with others.	5.05	.55	4.87	5.23	5.08	.77	4.82	5.34
CL3: Teamwork helps to make learning more interesting.	5.05	.71	4.82	5.28	5.22	.64	5.01	5.44
CL4: Teamwork makes me think better.	4.70	.94	4.40	5.00	5.11	.67	4.89	5.34
CL5: Collaboration is good for learning.	4.98	.62	4.78	5.17	5.17	.56	4.98	5.36
CL6: Discussions with my team mates in the <i>Statecraft</i> curriculum is useful for my learning.	4.83	.81	4.57	5.09	4.92	.69	4.68	5.15
CL7: Group work is enjoyable in the <i>Statecraft X</i> curriculum.	5.12	.72	4.89	5.36	5.13	.72	5.02	5.30
CL8: I learn more playing <i>Statecraft</i> game with friends than	4.93	.66	4.72	5.13	5.00	.63	4.79	5.21

playing the game alone.

Note. *M* = mean; *SD* = standard deviation; *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit.

Table 9
Summary of the Welch Analysis between First and Second Intervention Groups for Attitudes towards Collaborative Learning

Survey question	Welch Statistic	<i>df1</i>	<i>df2</i>	<i>p</i>
CL1	.407	1	70.727	.526
CL2	.046	1	62.835	.831
CL3	1.234	1	73.996	.270
CL4	4.914	1	70.330	.030*
CL5	2.004	1	73.997	.161
CL6	.282	1	73.782	.597
CL7	.282	1	73.782	.597
CL8	.257	1	73.634	.614

Note. *df* = degree of freedom.

Social Cohesion

The results of Survey 2 showed no statistical differences for all dependent measures of social cohesion, agency, diplomacy, and power for the first intervention. In the second intervention, the results (see Table 10) showed significant differences between the intervention and comparison groups for two dependent measures: social cohesion ($F = 19.28, p < 0.001, \eta^2 = 0.214$) and agency ($F = 5.45, p < 0.022, \eta^2 = 0.071$).

Table 10
Comparison of Results of Specific Survey Questions on Social Cohesion and Agency between the Second Intervention and Comparison Groups

Survey questions on social cohesion and agency	<i>F</i>	<i>p</i>	η^2
SC1. I feel that trust between races is important.	20.14	<0.001	0.221
SC2. I think that it is important for people of different races to live together happily.	10.99	0.001	0.134
SC3. I want to work well with people from different races.	10.88	0.002	0.133
SC4. I find it easy to work with people from different races.	10.47	0.002	0.129
SC5. A multicultural society is preferable to one with a single dominant culture.	5.14	0.026	0.068
A1. The government will listen to citizens who keep complaining	5.59	.02	.073

DISCUSSION

In the second intervention, changes in game design led to more game-play time for both boys and girls. This shows that students in the second intervention were more

engaged in game-based learning than students in the first intervention. The significant increase in game time game indicates that students showed much more interest in game-based learning in the second intervention compared to the first.

Although students in the second intervention also achieved slightly better outcomes in relevance of content and perspective, they achieved slightly lower outcomes in voice. It could be that the increase in game-play time allowed them to experience governorship for a longer time and that might have contributed to better learning outcomes.

The change in game design requiring collaboration among team members had a positive effect on attitudes towards collaboration. The students in the second intervention felt that teamwork helped them to think better.

CONCLUSION

We have shown that game design has an effect on the learning of twenty-first competencies. We have argued that a better-designed game resulted in students being more engaged, resulting in better outcomes in terms of argumentation, collaboration and social cohesion. Specifically, designing games which require more collaboration and strategizing and prioritizing, all twenty-first century competencies as they involve higher-order thinking skills and social skills, help bring about the development of such skills among students.

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Appendix 1

Rubric for Scoring Relevance, Perspective, and Voice in Students' Essays

	Level 1	Level 2	Level 3	Level 4
Criteria	1-5 marks	6-10 marks	11-15 marks	16-20 marks
Relevance	<p>Policies proposed are not relevant to the social and economic needs of the country.</p> <p>Most examples given are simplistic. Do not diverge from the textbook.</p>	<p>Examples given may include a non-textbook source or an innovative interpretation.</p> <p>Examples given may include a non-textbook source or an innovative interpretation.</p>	<p>Policies proposed meet the social and economic needs of the majority of the population.</p> <p>Examples given are appropriate and include non-traditional sources.</p>	<p>Policies proposed meet all the social and economic needs of this country.</p> <p>Examples given effectively support all the policies proposed. Examines examples given for its relevance.</p>
Perspective	<p>Offers only the textbook perspective.</p>	<p>Limited discussion of perspectives other than the textbook perspective. Alternatives are not integrated.</p> <p>Treats other viewpoints superficially.</p>	<p>Offers multiple perspectives, but they are integrated in a limited way</p> <p>Attempts to investigate viewpoints.</p>	<p>Integrates diverse multiple relevant perspectives.</p> <p>Multiple viewpoints are thoroughly discussed, explained and qualified.</p>
Personal voice	<p>Is indifferent towards the topic.</p> <p>Does not communicate feelings.</p> <p>Does not offer any opinion.</p> <p>Writing is phony, stilted or awkward.</p> <p>The reader is clueless about the personality of the writer.</p> <p>Voice used is inappropriate for the situation.</p>	<p>Cares about the topic in a limited way.</p> <p>Communicates feelings as an afterthought.</p> <p>Opinions are emergent in nature.</p> <p>Major inconsistencies cast doubt on the authenticity of the piece.</p> <p>The reader has to examine the piece carefully for an indication of the writer's personality.</p> <p>Voice used matches the situation at times.</p>	<p>Cares about the topic.</p> <p>Communicates feelings.</p> <p>Opinions are outlined.</p> <p>A few inconsistencies in the piece.</p> <p>The reader gets a glimpse of the writer's personality.</p> <p>Voice used largely matches the situation.</p>	<p>Cares deeply about the topic.</p> <p>Communicates strong feelings and honest statements.</p> <p>Only the writer could have written it. Opinions are well-defined and detailed.</p> <p>Writing is authentic. The writer's voice is consistent throughout the essay. The writing sounds real.</p> <p>Displays a well-developed personality. The reader has the impression that he is getting to know the writer very well.</p> <p>Voice used matches the situation very well.</p>

Appendix 2

Sample of Student Essay in Second Intervention

A Sample of High Quality Work

Imagine that you are running for an election to be a member of parliament and that you have to formulate policies to convince the citizens of your country that you are the best candidate. Justify your proposed policies by using examples from what you have learnt, what you have read, and your personal experiences.

I think that I am the best candidate because I always listen to the citizens' needs. I will do the best that I can to keep them happy and will also care about their well-being. This is the most important part of being a member of parliament. Without happiness, citizens will most likely rebel against the government and this may lead to work strikes. This will indirectly lead to low economic growth and thus falling into poverty. Without a good medical care service, citizens may be vulnerable to serious illnesses such as bird flu or SARS. As the saying goes, 'Prevention is better than cure'. By living a healthy lifestyle, very few citizens will be sick. I can play my part in the subsidies of medicine and hospital fees so that all will get good treatments from doctors and nurses with having to pay just 50% of the price.

I have learnt that by keeping the country safe from any external attacks such as war, we need to have strong defence. By having a strong defence, no country would want to or will think twice before declaring war. This could also make the citizens happy which is more important because they would feel safe by the defence that the country provides. I will try my best to make a strong defence and also commercialise this so that the citizens will know that the country would be safe from any attacks either by all-out war or by terrorist attacks.

I think that these 3 factors could make the country progress and a prosperous country is the outcome if these factors are being carried out efficiently.

*The Lesson from the Educational Risk Management Experience of a
Thai Public University*

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Abstract

The objectives of this research were firstly, to study the situation, cause and result of educational risk and secondly, to study the lesson from the educational risk management experience of Thai public university. This research used qualitative method and studied in the form of phenomenology methodology. The data was collected from the key informants; the experienced faculty executives and the others who related to the university management of one public university by using In-depth Interview, analyzing from narrative data and applying analysis with the literature reviews to explain the occurrence.

The research found that 1. The situation of educational risk showed in the phenomenon of declining entrance students, lower graduated student quality and poor performance in educational management goals. For the educational risk cause, the risk of education in this case study came from the competition about private management approach in new born faculties that must run themselves by their own budget. The fact that they had private faculty status under the government regulation encouraged them to create commercial curriculums, whereas left out academic efficiency, personal ethic development, management system, and educational facility budget. Instead of paying attention to academic mission of giving public service to community, the faculty executives aimed to do the marketing competition to promote themselves. And for the educational risk result, all of risk causes above led them to the unproductive faculty samples because of the more consumption expenditure they used but the less effective results they got. 2. The lesson from educational risk management experience of Thai public university showed that while the executive tried to solve current problem, the vision of educational development was still unclear. The strategic policy was also dominated by the leader without having any participation or monitoring. Finally, the main obstacle was lacking internal cooperation and coordination, including having poor supervisor from university executive who set educational policy to the same direction. The research suggested that the university management executives should set the educational risk management policy from listening to community's notion. In addition, all faculties must concentrate on giving public services as a main philosophy, not promoting educational business to society.

Background

Arranging educational management of each university required many input resources such as, target and objective, strategic policy, implementation measure, facility, student and educational process for producing the educated people. These factors were influenced by the environment like a government policy, modern life style attitude and technological change. There are many risk factors that affected the situation of risk in many universities during educational management process including public university.

As regards government educational policy, Thai public university is now going to be out of system, under regulation, or in other word becoming private university. Most of the faculties of this university, especially the new born faculties tried to have more students in order to get more income to support them as they lacked government financial support. This was the turning point that leads the public university to the market competition between each of educational institutions.

The educational quality involved in educational risk management. It came from many sources like command, decentralization of administration, resource of utilization, corruption, ethical behavior, participation & monitoring and the management process of the university. When these risk factors happened, they affected the university operation and his final goal.

There were not many researches that related to this study, most of them concentrated only on the operational risk or the business risk of each organization. On the contrary, this research aimed to study the situation, cause and result of educational risk of Thai public university and to study the lesson from educational risk management experience of Thai public university by using a case study of one public university. The researcher hoped that the benefit of this discovery may be useful to Thai educational society.

The research objectives

The objectives of this research were,

1. To study the situation, cause and result of educational risk of Thai public university.
2. To study the lesson from educational risk management experience of Thai public university.

Scope of the study

1. Area scope: The area field study was located on the local public university, by paying attention to two faculties that were in semi- private university. They must run themselves by their own budget.

2. Informants scope: The key informants were the ex-experienced faculty executives and the others who related to university and faculty management.
3. Time period scope: The research study was conducted for three months from June 2013 to August 2013.

Literature Reviews

The administration of educational organization and personnel (Jomphong Mongkolvanich, 2012)

The administration of educational organization meant educational operation running by people to develop the institution management quality. The executives who had more experience must apply the suitable combination of theoretical and practical guidelines to cope with current situation, and finally lead the organization to its goal. This mission covered the academic work management, facility supporting, student activity and community relationship.

The evaluation of educational management (Pisanu Fongsri, 2011)

The evaluation of educational management was the process of making decision on the context value of educational management including media, learning, teaching, curriculum, project, quality assurance, organization and above all, people. In consideration scope of the evaluation of educational management, it can use the systematic theory to approach the compose of input, process, output, context, outcome or impact and feedback from determining guideline of evaluation.

The educational risk management (Thorn Soontarayuth, 2007)

The educational risk management was composed of management factor, activity control and educational operation process. The objectives were decreasing risk cause and reducing probability of happening risk in order to control loss to the organization acceptance level, be able to evaluate detriment number and have systematic detective to prevent risk situation by considering the implementation of organization's goal. Actually, the main purpose of educational institution is to produce the educated people.

Related Research study

Duangjai Chauytrakul (2008) researched about risk management in basic education school with two objectives. Firstly, to study the risk factors in basic education school and secondly, to study the guideline of the risk management in basic education school. The data was collected by using document analysis, interview and questionnaire of 1,415 related people. It was analyzed by using descriptive and referential statistic, factor analysis and content analysis. The result exhibited that the risk factor in basic education school consisted of five components; learning and

teaching process, finance, confidence in education, environment and safety management. Most of school could cope with risk control instrument as a risk management guideline.

Sureeluck Sararit and Thanomwan Prasertcharoensuk (2012) researched about risk management for learning and teaching in school under Khon Kaen administrative organization with two objectives. Firstly, to study risk level in learning and teaching and secondly, to look for guideline in managing the risk from learning and teaching in a case study. The instruments used in this study were questionnaire and interview of 19 school administrators and teacher. The data was analyzed by using descriptive statistic, content analysis and descriptive analysis. The outcome revealed that first, level of risk in learning and teaching was in “moderate level”, ranking in order as the supporting factor of teacher’s learning and teaching, the teacher’s learning and teaching management, and teacher’s characteristic. Second, In term of risk managing guideline of learning and teaching, the risk control should be performed, and measure for prevention should be searched.

Research methodology

1. Area selection: This study was qualitative research. It was studied in the form of phenomenology methodology. The research aimed to analyze the source of educational risk and tried to learn the lesson of educational risk management of public university from case study. The key informants were the ex-experienced executives who involved in risk management process and the related officers who were affected by the risk management measures.
2. Source of information: The primary research data was collected from the key informants; 7 ex-experienced faculty executives and others 5 people who related to the university risk management by using in-depth interview and narrative analysis as a tool. Besides, the researcher also gathered the secondary source data from literature review such as research, book and academic article.

Research Tools

The researcher used research guideline by doing In-depth Interview to collect data from key informants. In research guideline, it composed of descriptive question, structural question, compare-contrast question, direct and cross-check question. In narrative analysis, the researcher took a note and, concluded all of the informants and the related people’s word. These two-ways data must be checked in 3 forms as below,

- Creditability: accepted by reader; the result was the conclusion from real evidences. All of the participants and the related people in the educational risk management process must accept the result.

- Fitness: tested by expert, the research found fitness of general relevancy context. Risk analyst and educational expert could test how the methodology ability explained research objectives.
- Audit ability: because of using triangulation method, any researchers could have similar testing outcome. This result was concluded by other researchers who used previous data.

Data analysis

Data analysis can be classified in 2 forms;

- Daily analysis: detail analysis of educational risk in current situation.
- Overview analysis: analysis summarization of objective results.
 - Domain analysis: content analysis for each objectives; firstly, situation, cause and result of educational risk of Thai public university and secondly, the lessons from educational risk management experience of Thai public university.
 - Taxonomy analysis: identified analysis; what are educational risks of Thai public university.
 - Componential analysis: classified analysis; what are lessons from educational risk management experience of Thai public university.
 - Theme analysis: concluded analysis; how to create the beneficial approach from the research result.

The research Result

1. Situation, cause and result of educational risk

Conclusion from the data analysis collected by many sources, the situation of educational risk showed in the phenomenon of declining trend of entrance students, lower graduated student quality and reduction in employment rate, and many inefficiency and unethical staffs make poor performance to educational management goals of the case study.

In the framework study which using systematic factor approach analysis, the educational risk was caused by

- 1.1 Context: the major risk factors were first, the educational regulations such as unclear public policy about the direction of public university status, second, the unstable quality assurance policy that affected related people adjustment, and third, the market competition between each of university including the public university.

1.2 Input: the major risk factors were that the commercial tailor made curriculum from the university top management policy. It lacked people, money, and technological and innovative facilities while faced unscreened students.

1.3 Process: the major risk factors were the policy implementation, inefficient management including people, money and working system, overstuff traditional mission such as academic contribution services to community, arts and culture preservation, social development research, misguided arranging learning and teaching process.

1.4 Output: the major risk factors were unqualified and unethical graduate and worthless and unuseful research.

In conclusion, the risk of education in this case study came from private management in new born faculties that must run by their own budget when they became private faculty under the government regulation. This situation encouraged them to create the commercial curriculums whereas abandon the academic efficiency, ethic development, management system and educational facility. Instead of paying attention to the public services of academic mission to the community, the faculty executive aimed to make marketing competition.

And for the educational risk result, all of causes above led them to the unproductive faculty samples because of the more consumption expenditure they used but the less effective results they got. Some informants said that there were more money illusion in quality assurance standard for these faculties when they made manipulated key performance indicators for a high scores.

2. The lesson from the educational risk management experience of Thai public university

Studying the lesson from the educational risk management experience of Thai public university, the research indicated that after knowing the causes of educational risk, we must follow framework study about the steps of risk management, then turn to the enterprise risk management applying, and finally, mention about the model of efficiency measurement in educational risk management.

2.1 The steps of risk management

- When faculty executive got risk management policy from the university executive, they set the risk management committee by selecting close staff. The risk identification was held in the form of surrounded risk situation survey.

- In term of risk evaluation step, even though the committees changed their attitude, they didn't use any suitable method or approach process assessment, as a consequence the results came from only assumption and affected old risk problems.

- The risk management strategy required efficiency decision for making process to cope with any several levels of risk. However, the strategy was up to each officer's experience and judgment. All management plans need to be at the risk acceptance level. The risk control team must always keep an eye on risk situation.

- Other problem were hard monitoring and report of the risk management plan of executive board because the officers just presented current circumstances about how to do if anything changed. This activity may lead to higher risk level while the old risk problem was still unsolved.

2.2 The enterprise risk management applying

When the enterprise risk management applying was used to analyze this case study, all of the key informants revealed that if the top management took both top-down and bottom-up concepts to set the risk management policy from people participation, he could make the best practice for running the policy to the final goal of organization's target. All of related evidences showed that one of the key factors was the support system by the executive especially in setting reliable risk management teamwork and adapting suitable risk management planning.

The last two things that affected on changing management from the enterprise risk management applying were designing system of risk management and formulating this system to be effective. Most of the activity problems in this case study were insufficient designed system and working without monitoring. The educational risk level is higher than expectation because of lacking internal cooperation and coordination, like having poor supervisor from the university executive that set educational policy to the same direction.

2.3 The model of efficiency measurement in educational risk management

To measure the efficiency of educational risk management, the executive must focus on 4 factors; risk realization, culture change, analysis process, management experience and conclusion.

The finding manifested that the public university in this case study pay too little attention to 4 factors of educational risk management above. Having only a risk management plan could not assure successful risk controlling, it also required community participation in overall risk management, open-minded people to solve happening risk, formative and summative evaluation for risk control process analysis, lesson from risk management experience and utilization of past risk management result.

In conclusion, as regards the lesson from the educational risk management of Thai public university experience, it displayed that even though the executive tried to solve current problem, the visions for educational development was unclear and the strategic policy was also dominated by the leader without having community participation or monitoring. Finally, main obstacle was lacking internal cooperation

and coordination, including having poor supervision from university executive who set educational policy to the same direction.

Discussion

1. Research study process discussion

The research process was successful because of having clear framework & scope, using many kinds of instrument, conducting the research by efficient methods, using triangulation checking facts and data and having approved the results by related people. Anyone can use this research methodology to study other case which had a similar context.

2. Research result discussion

2.1 The situation, cause and result of educational risk

This study was not a survey research to find out the risk category like previous study but it aimed to identify what is the source of educational risk by using the CIPO tool or systematic factor approach analysis. The answer helped to understand the situation and result of educational risk.

The outcome demonstrated the same result as the other researches that public universities used reactive risk management strategy to mitigate risk effect after it happened instead of using proactive risk management strategy to prevent probability of happening risk. This method was not a good policy. It was an ineffective strategy to cope with educational risk management.

2.2 The lesson from the educational risk management experience of Thai public university

It could be concluded from the educational risk management experience of Thai public university that many informants did not pay much attention to risk management. They agreed with the same viewpoint of the university community to go together with the policy of risk management assessment because they supposed that it guaranteed the successful educational risk management.

Learning from the educational risk management experience of Thai public university, the framework of this research could be created from the risk factors analyzed by the CIPO model, studied by the enterprise risk management applying and related to the model of efficiency measurement in 4 factors of educational risk management: risk realization, culture change, process analysis, management experience and conclusion.

Conclusions and Recommendations

1. Conclusions

The research results showed that if the executives of educational management didn't pay attention to academic development as an educational institution but concentrated only on organization development in educational business, it would lead educational institution in our country to the destruction.

The situation of educational risk showed in the phenomenon of declining entrance students, lower graduated student quality and poor performance in educational management goals.

In the framework study which using systematic factor approach analysis, the educational risk was caused by risk factors from the CIPO model: Context, Input, Process and Output.

And for the educational risk result, all of risk causes above led them to the unproductive faculty samples because of the more consumption expenditure they used but the less effective results they got.

The lesson from the educational risk management of Thai public university experience, it displayed that even though the executive tried to solve current problem, the visions for educational development was unclear and the strategic policy was also dominated by the leader without having community participation or monitoring.

2. Recommendation

The research suggested that the top and middle management university executives should set the educational risk management policy from listening to the community's opinion about the educational risk assessment. All faculties must concentrate on giving public services as a main philosophy, not promoting educational business. As regards the next research, the interested researcher is advised to keep studying on how to succeed in educational risk management and which is the efficiency evaluation instrument.

Acknowledgement

Thanks for impression and cooperation from all of the informants. If this research were worth to the society, the researcher would dedicate this worthiness to all grateful and respectful related people. However, if there were any mistake in this research, the researcher would like to accept humbly and apologize for any inconvenience.

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Effects of Assessment on Wiki Activities during Group Work

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Abstract

Wiki has been embedded within various applications that support collaborative work and communication especially in teaching and learning environment. This study investigates the implementation of wiki in Computer Supported Collaborative Learning environment. Many research works have proceeded to identifying the appropriate assessment methods in wiki and have compared the computed grades with the assessments of other activities within the course or program to measure its reliability. However, research from the aspect of effects of assessment on wiki contribution is limited especially in understanding how the participation in the various wiki group activities varies when assessment is introduced. In this study, the perception of students towards wiki and the effects of assessment on the wiki activities during group work were explored. A mix of quantitative and qualitative approach was used in the experiments. Observation of student's participation in wiki was done using the wiki platform: *Moodle system*. From the study it was found that students' activities in wiki as a group increased when they were informed that their participation in wiki would be assessed. Students were found engaged in creating more sub-topics for group discussion besides being engaged actively in commenting on other posts.

Keywords: wiki; collaborative learning; group work; student assessment

1. INTRODUCTION

This study aims to examine students' experiences and perceptions associated with the use of wiki in the context of collaborative learning in higher education with focus given to student assessment. Assessment is based on the contributions to wiki during group work. Findings indicate that wikis without any assessment being conducted on student contribution will not attract students to participate in wikis. On the other hand, with assessment the number of activities in wikis increased and students were more committed and motivated. Peer evaluation in wikis has been identified as one of the motivating factor for students to contribute in wikis.

This study provides insights that may inform the decisions of educators who are considering the use of wiki in their courses as a platform to enhance collaborative learning during group work. Previous research has shown that wikis can be effectively used in education. However, research from the aspect of assessment of wiki contribution is limited (on both the methods of assessments and also impact of assessment on wiki contributions).

This study will explore the perceptions of students towards wiki and the effects of assessment on the wiki contribution, which may provide some insights to lecturers who are in the process of selecting an appropriate method to assess students for their course. Besides that, the findings could highlight the activities that students get involved most in a group work using wiki when assessment is carried out. Educators could then assign weightage to each activity based on the frequency of participation.

On top of that, the behavior pattern of students in carrying out the group work will be able to give some insights to educator to design their assessment method and identify which activity should be stressed upon to encourage collaborative learning and avoid every group member from just getting involved in one type of activity. The findings also would be able to provide a platform for furthering our research to investigate if there is a relationship between the quality of the wiki content and the frequency of participation in wiki.

A. Wiki as a Collaborative Learning Tool

Collaborative learning refers to the tasks that require joint intellectual efforts among students or between students and teachers (Chu & Kennedy, 2011). It is basically dealing with how students can learn together with the help of computer technology. In collaboration, learning occurs socially as a collaborative construction of knowledge. This is not done individually but involve group work such negotiation and sharing knowledge (Samur, April 2011). The students are responsible for one another's learning as well as their own. Thus, the success of one student helps other students to be successful (Gokhale, 1995).

Wiki is a tool that supports collaborative learning. This has been proved by several researches where it is a tool that provides medium of communications between wiki

users. According to (Popescu & Manafu, 2009), (Su & Beaumont, 2010) and (Hadjerrouit, 2012) they agree that wiki allows participants to generate discussion and conclusions in learning activities collaboratively. Some of the collaborative activities in wiki such as adding contents, deleting, moving the contents, formatting the words or sentences, checking grammatical error, linking and sharing of images (Chu & King, 2012) which is done in group of participants in wiki. By using wiki in education, research has shown that it has improved the students' and lecturers' perception, expectation and motivation in collaborative learning (Thomas, King, & Minocha, 2009). Key factor to a successful wiki-enabled collaborative activity is to manage the students' expectation and motivation in using wiki.

A sizable amount of research has been done in order to identify the perceptions towards wiki in education. The perception almost comes from interviews, surveys and observations in wiki. Findings show students' experience in using wikis as positive (Chu & Kennedy, 2011). The positive perceptions towards wiki criteria are such as ease of use, user friendly layout and collaboration improvement between group members. Wiki has also been accepted as an effective knowledge management medium in term of knowledge creation tools, knowledge capturing tools and knowledge sharing tools. Based on the experiments done in previous studies, students in majority feel that wiki assignments promote their critical thinking process and they agree it contribute to easy collaboration with their peers (Gehring, 2008).

Furthermore, the rating relates to the perceived severity of problems faced by students shows they faced low rating problems towards wiki such as privacy issues in posting items, limited functionality in wiki platform and less support for thread discussion platform (Chu & Kennedy, 2011). Whereas based on (Chu et al, 2012), the students and teachers' attitudes and perceptions towards collaborative writing process in wiki found to be more positive where the paper is focusing on the student-centered collaborative process, underpinned by social-constructivist (Hadjerrouit, 2012) paradigm and social view of writing process theory.

The literature has found that the students' background and experience contribute to the students' motivation in using the wiki effectively. From the literature, this key factor can be easily found from Computer Science discipline than other field because students' experience in using computer technology is more than other fields (Cubric, 2007) (Thomas, King, & Minocha, 2009). Some research found the indicator of the extent to which the students collaborated with each other is by measuring the mean of their comments in wiki (Chu & King, 2012). This was supported by the finding from (Chu et al, in press), which it illustrates that wiki is suitable for collaborative group work because it broadens the students option in contributing their work output. The advantage highlighted in this was wiki breaking temporal and geographical barrier.

B. Assessment in Wiki Collaborative Learning Environments

Assessment factor does motivate a student to successfully collaborate their tasks in wiki. Several papers have proved this by stating their findings. They have proved that

by implementing the described wiki based process and assessment strategy has lead to increase the students' engagement and self-confidence in learning (Cubric, 2007) (Judd et al, 2010). However, assessment is still a challenge in evaluation of the performance and contribution of the wikis author. This supported by paper (Grant, 2006) where it focuses on enhancing an existing wiki platform with some functionality, which is tailored to the educational context. These features provide support to instructor in managing and evaluating grading process.

Currently, several assessment issues are found in wiki evaluation process. The fluidity of wiki found assessment process difficult, where the issues falls on when the assessment should be taken and the issue on deciding which contributions should be attribute to the students because it involve many contributors in the wiki pages (Terry et al, 2010). Another issue raised by (Gehring, 2008) is it is difficult to grasp how much an individual contributes in the wiki.

Based on the revealed issues regarding assessment in wiki, several papers have suggested proper assessment strategies in order to adopt assessment factors in wiki contributions. The suggested assessment strategies can be categorized into five types (Gehring, 2008):

1. **Self-assessment:** Students write up summaries of their contributions to the wiki and submit them to the instructor.
2. **Group-based assessment:** Students work in groups, and rate the contributions of each group member, as well as suggesting a grade for the group as a whole.
3. **Instructor/TA assessment:** The instructor or searching assistant assigns a grade and gives feedback without any outside assistance.
4. **Expert assessment:** Links to the wiki pages are provided to outside experts, who assess the contributions.
5. **Peer review:** Each student is assigned two or three other students' contributions to assess, based on a rubric.

The evaluation criteria that can be used as scoring parameter in wikis' contribution are such as *peer evaluation support*, *observation of students activity on wikis*, *automatic evaluation by wiki system* and *instructor evaluation support* (Grant, 2006). A wiki assessment also based on the level of students' contributions in wiki and to verify this most assessments using a series of wiki log activities (Judd et al, 2010). Palomo-Duarte et al, 2012 has proposed wiki assessment is based on the graphical representations of students' contribution which consider *the overall effort of students*, *distribution of effort*, *work organizations and transferable skills*. These aspects were used to identify students' skill from their contribution in wiki.

However, Rodriguez-Posada et al, 2011 has presented the main needs for a correct assessment in wiki's contribution. In collaborative and cooperative learning process, there are several usual skill can be assess like work effort, distribution and collaboration of work, authority or conflict. The recommended features to support assessment in wiki system are (Rodriguez-Posada et al, 2011):

- Provide graphical representation of differences in sentences from wiki history pages
- Quantitative analysis of public database in the wiki website.
- Collect and aggregates information which help to analyze the status and development of wiki.

A variety of different approaches used to design marking criteria. In order to understand the evaluation criteria in wiki, the prescribe wiki activities or learning activities should be clearly defined such (Cubric, 2007):

- ‘add contribution to topic analysis’,
- ‘add definition to module’,
- ‘review articles / website relatively to the topic’
- ‘compile practical tasks’
- ‘develop essay and review colleague works’

This will guide the evaluation process whether using rubric or designing marking scheme.

In peer assessment, the type of marking criteria can be specific or more holistic general rating criteria. Some of the suggested criteria has been used by several peer assessment systems such *instructor designed marking form*, which allows instructors to design their own rubric of marking. Some systems provide flexible design that can accommodate a range of assessment activities such ‘selection of marking’, ‘assigning numeric values’ and ‘free text comments’. Other paper suggests meta-analysis to investigate the validity of peer assessment marks which is comparing between peers marks with teachers’ marks. However from the students’ feedbacks, they preferred both writing and receiving the holistic feedback (Luxten-R, 2009).

C. Research Gap

A great deal of research has been done on social technologies in education including wiki in education. Many research works have proceeded to identifying the appropriate assessment methods in wiki and have compared these assessments with the assessments of other activities within the course or program. However, research from the aspect of effects of assessment on wiki contribution is limited especially in understanding how the participation in the various wiki group activities varies when assessment is practiced. In this study, the perception of students towards wiki and the effects of assessment on the wiki activities during group work were explored.

2. METHODOLOGY

A. Research Questions

The purpose of this study is to examine the students’ pattern of behavior in using the wiki during group work, and also to compare the effectiveness of wiki in encouraging

participation in wiki, with and without the presence of assessment. The following research questions were addressed:

RQ1: What are the students' patterns of participation in wiki during group work when their contribution in wiki is not assessed?

RQ2: What are the students' patterns of participation in wiki during group work when their contribution in wiki is assessed?

B. Participants and Procedures

The study participants consist of two groups of students (n=44) from the Diploma of Information Technology (DIT) program. The first group of DIT students (n=24) and the second group of DIT students (n=20), both enrolled for the course Internet Application. Within each groups, six (6) sub-groups were created which consists of 3 to 4 students in each subgroup. These students are from the 2013 cohort.

Both groups of students were given similar instruction (except for the assessment part) on how to engage in the wiki as part of their collaborative learning for their course. However, the main difference between the groups is, the first group was not informed that their participation will be assessed since no assessment of student participation in wiki was involved. On the other hand, the second group was informed that their participation in wiki would be assessed.

Both groups of students were required to use the Moodle system for the enrolled course Internet Application. Students are required to participate in collaborative learning either through contributing to the wiki page by creating new pages/topics of discussion, editing existing pages/topic of discussion, commenting on posts, editing profiles, correcting formats or correcting grammar/spellings mistakes. To initiate the participation in Wiki, the course instructor assigned unique topics for each of the subgroups.

3. RESULTS AND DISCUSSION

A. Pattern of participation in Wiki when contribution is not assessed (n = 20)

In exploring the participation of students in Wiki when they were not assessed, out of the 20 students 30% were involved in creating of wiki pages for example creating of new subtopics for discussion purpose (see Figure 1.0). Meanwhile, 45% of the students were actively involved in editing the pages which is the highest portion in the wiki activities. The rest of the 25% were passive users and were basically involved in modifying their user profiles.

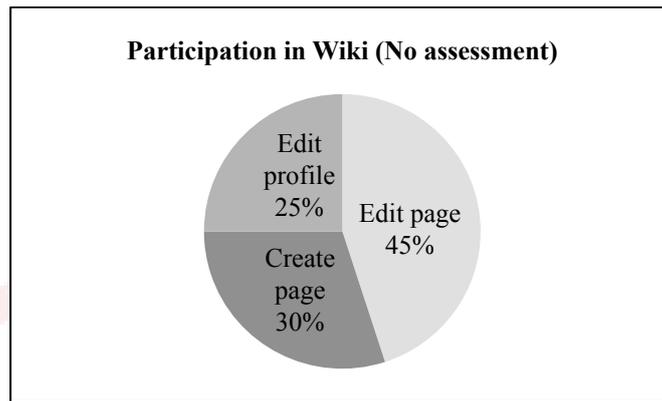


Figure 1.0: Percentage of participation in some wiki activities

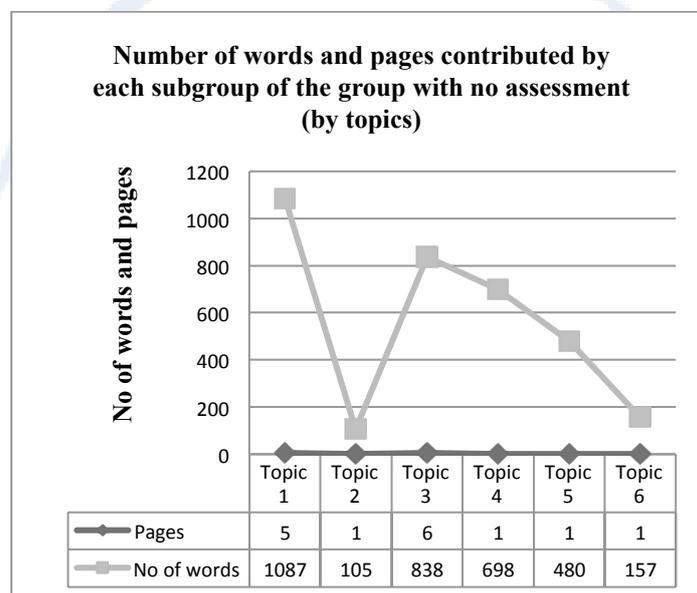


Figure 2.0: Number of words and pages contributed by each subgroup of the group with no assessment (by topics).

Based on the observations on students enrolled to the Internet Application course whose contributions to the wiki were not assessed, the below findings were perceived:

- Most of the page creators edited their own page rather than their peers' page or work. This scenario was shown by Group 1, Group 3, Group 5 and Group 6 (4 out of 6 subgroups). However, result also show that only participants from Group 4 (1 out of 6 subgroups) actively worked together in order to complete their page, where all 3 participants collaboratively edited the page by adding words, formatting the page and commenting on peers post. In overall, finding shows students preferred working individually rather than collaboratively in the wiki platform.
- Figure 2.0 shows Group 1 was actively involved in the creation of wiki pages where it consists of 5 subpages and contain 1087 number of words.

On the other hand, Group 2 can be considered as very passive in terms of contribution to the wiki because only one student (1 out of 4 students) participated and created only one subpage. This outcome was also seen in Group 4, Group 5 and group 6 (which means 4 out of 6 subgroups were generally passive users of wiki). This passiveness can be supported by several factors as stated below:

1. Students' were still relying on other group members' to participate and contribute in the wiki instead of involving and contributing on their own.
 2. Students' were inactive since there were no rewards or evaluation done on their wiki contributions.
- There were other factors that effected students' participation in the wiki such as Internet connection and prior experience in using wiki. The slow Internet connection and no prior experience in using wiki did effect the participation in terms of students' being not comfortable in assessing and contributing to wiki as they did not know how to use it. Besides that, the slow Internet speed caused the students to lose interest in working with wiki. This shows that previous experience or training in using wiki and good ICT facilities are essential to ensure the consistent participation in wiki by students.
 - The nature of the wiki which is text based content did give impact to the wiki contribution. Students preferred if the wiki could include other media such as video, audio and images rather than only text.

Based on the observed passive roles in wiki participation, the next question was how to increase the level of contribution and participation in wiki. The following section discusses Based on this results, an experiment was conducted on the other group of Internet Application's course students. In this experiment, assessment was included as part of the course evaluation. The assessment was based on students' contribution in wiki and this was clearly informed to students.

B. Pattern of participation in Wiki when contribution was assessed (n = 24)

All the 24 students were informed about the evaluation of their participation in the wiki. The evaluation was categorized into three categories as stated below:

1. Peer assessment

Students were evaluated by their peers in terms of their participations in group project, cooperation with group members, time management in wiki activities, ability to provide good feedback and listening consideration to others' opinion.

2. Group work evaluation

Students were evaluated based on the quality of the contents, reliability of the references, layout, tidiness of the information and the relevancy or accuracy of information.

3. Individual evaluation based on rubrics

Activity log of each student were referred to monitor individual activities in the wiki. The evaluation criteria considered were the frequency of contributions in wiki such as commenting, editing, creating page and sharing of images, file or other elements in the wiki.

The purpose of this approach was to observe the pattern of participation in wiki when evaluation of wiki participation is introduced as part of their grade for the course. Figure 3.0 shows several subtopics (pages) have been created by members of each group. The average number of pages created by the groups is 15 pages with the minimum being 8 pages and the maximum being 28 pages. Among all the six groups, Group 3 was the most active in terms of contribution to the wiki pages. Some of the observation made from this experiment is described below:

- In total 91 pages have been created by the six groups of students. This shows an increase in number of pages created compared to the students in the previous experiment (without assessments) where only a total of 15 pages were created. On top of that, each group had more than one page created when assessment was introduced. The comparison between the two groups (group with assessment and without assessment) will be explained in the following section.
- Students were more confident in commenting and viewing their peers' work. This was based on the observation of students' wiki log activity. From the wiki log activity, it was observed that most students were actively participating in viewing other member's pages, however this activity cannot be consider as a wiki contribution because no direct contribution to the wiki was involved.

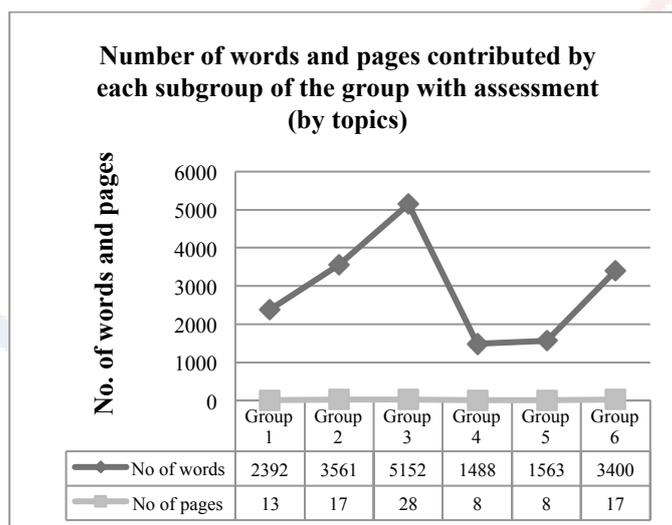


Figure 3.0: Number of words and pages contributed by each subgroup of the group with assessment (by topics).

C. Impact of assessment in wiki participation – Comparison of experiment with and without student assessment

In order to investigate the difference in the pattern of students’ contributions to the wiki in both the approaches discussed in section IV(A) and section IV(B), a comparison between these two were done based on various elements of wiki contributions such as the *add page*, *commenting*, *edit page*, *view pages* and *view history* activities. Figure 4.0 shows a significant difference in the pattern of behavior of the students when assessment was introduced. With assessment, students tend to participate and contribute more to the wiki.

Referring back to Figure 2.0 and Figure 3.0, the total number of words contributed when assessment was implemented was 12,919 words while 3,365 when no assessment was conducted. Figure 4.0 shows that more students were involved in editing pages and commenting on pages when assessment was done. Figure 5.0 clearly shows the difference in number of pages added by wiki participants between sub-groups that were assessed and not assessed. Generally, the number of new pages created by wiki contributors is much higher when the students were assessed.

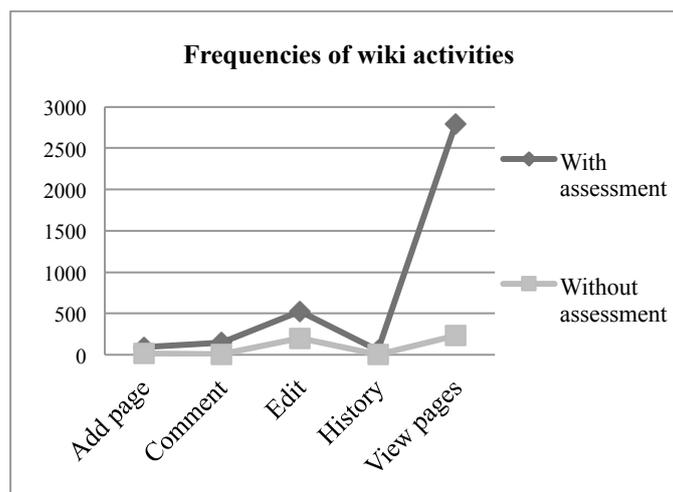


Figure 4.0: Frequency comparison between two different approaches to wiki contributions; with assessment and without assessment.

Table 1.0 shows the results of independent sample t-test for comparing two approaches used in measuring the wiki contributions. The activities’ include *add page*, *commenting*, *edit page*, *view pages* and *view history*. The involvement of students in these mentioned activities represents the students’ participation in wiki. The difference between the two groups (group with assessment and group without assessment) was significant with $p < 0.05$ ($p = 0.0013$), which shows the assessment factor did effect the involvement of students in the wiki activities.

Groups	Involvement in wiki activity (frequency)		Significant (2-tailed)
	Without assessment	With assessment	
Group 1	209	312	0.0013*
Group 2	29	674	
Group 3	115	966	
Group 4	54	525	
Group 5	23	539	
Group 6	22	599	

Notes: Activities include add page, comment, edit, view and add image; $p < 0.05$; * Significant at $p < 0.05$

Table 1.0: Independent sample t-test between two approaches on the wiki contributions (focusing on the assessment factor).

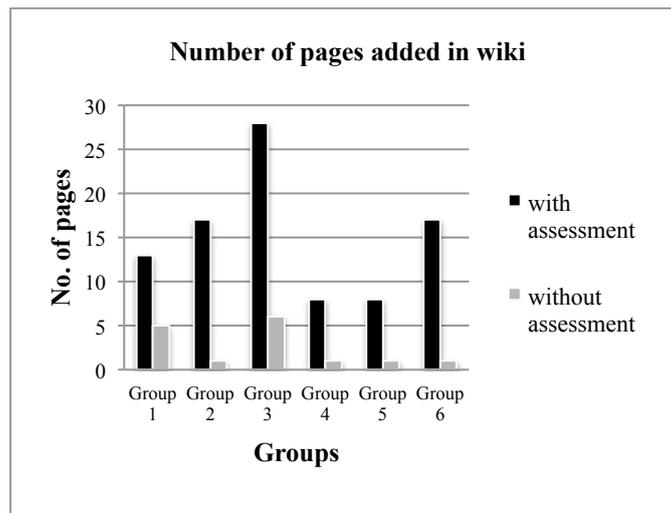


Figure 5.0: Number of pages added in wiki using two different approaches.

Figure 6.0 shows, after have been evaluated by their peers about 92% of students (out of $n=24$) agree peer assessment is one of the motivation factor to encourage them participate in wiki. This shows the commitment and engagement in the group work was the major element to be considered in order to ensure collaboration learning between the members of the group in wiki. They were also interested to involve in wiki for other subject or course in future session. However, only 61% agreed to continue contributing to the wiki if their peers or lecturers do not assess them.

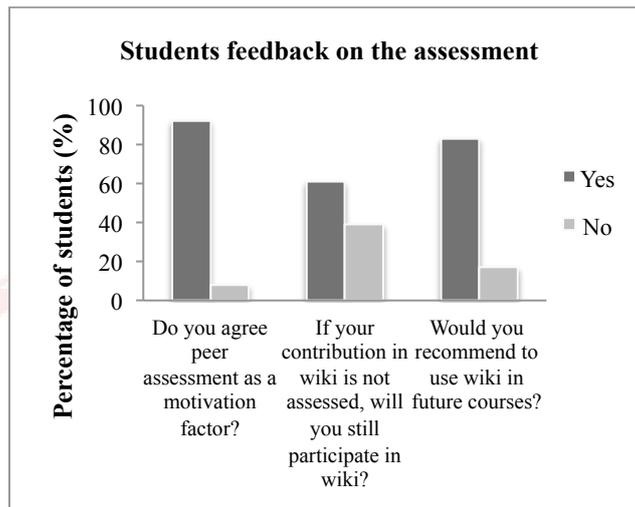


Figure 6.0: Students’ feedback on wiki assessments.

4. CONCLUSION

In this study it was found that assessment did affect the pattern of student participation in wiki group work. These effects were seen in various wiki activities such as in creating pages, editing pages, commenting and viewing. It was found that most of the students were involved in viewing pages followed by editing pages. The numbers who were involved in commenting were low and this is rather interesting and requires further research to investigate why such scenario occur in collaborative groups and how students can be encouraged to participate more in commenting (e.g. enhancement of existing features of wiki system). The identified wiki activities with most involvement from students may be explored further to understand if these activities need to be given higher or lower weight during assessment.

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The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is surrounded by two large, overlapping, brush-stroke-like arcs. The upper arc is a light red color, and the lower arc is a light blue color, matching the text. The arcs are thick and have a soft, painterly edge, creating a circular frame around the text.

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*The Implementation of Electronic Transactions Views From the Law of
Consumer Protection Law*

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0313

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Abstract

The development of information technology and telecommunications today, has led into the various assorted services and also existing telecommunication facilities, as well as sophisticated information technology. Computer as a tool with supported technology development makes the trade to be smooth and easy to be accessed by any person or company. The problem in the study is how the implementation of the electronic transactions law of consumer protection Law in Indonesia. The methods that be used in this research are the juridical normative and descriptive analysis which are done with a qualitative approach to view and analyze the legal norms (normative analysis) in existing legislation. The results acquired that the conduct of electronic transactions in the development of online business in Indonesia is very rapidly. The development encompasses a wide range of businesses, not just those mentioned above but also to other businesses. Online business in Indonesia has been known and taken into account in the world. While in the legal protection of Consumers in electronic transactions in Indonesia at present is still a lot of consumers who just learned that the electronic transactions are limited to shopping on the internet, without trying to understand the conditions that made the trade, while consumers have always been on the wrong position so charged to indemnify on electronic transactions.

Keywords: electronic transactions, trade, consumer protection, online business

INTRODUCTION

Background

In the middle of a communication that is increasingly integrated global communication network with the growing of popularity of the Internet has made the world's shrinking and increasingly fades the boundaries of state sovereignty and the following order of the people. Dynamics community in Indonesia which are new to grow and develop as an industrial society and the information society, still seems premature to accompany the technological development (research group University of Indonesia 1999: 1)

It makes the trade with electronic transactions (electronic commerce) became the choice for the business actors to launch the trade deals because of the nature of a public network that is easy to access by any person or company.

Research has been done to electronic transactions According to commendation section 1367 KUH Perdata and ITE Act remain open opportunities for judges to apply the principle of strict liability for the sake of greater common interests (the law on line). While the research conducted by Edmon Makarim, Caretaker Law Minister expert staff communication and Informatics, concerning legal liability as the organizers in electronic systems, basically, an electronic system using the principle of presumption of innocence, or the principle of liability based on negligence. It called presumed liability that is concluding by an Act No. 11 of 2008 of the information and electronic transactions (ITE Act) reciprocity presumption of guilt. This summary can be pulled from the formulation of article 15: each organizer electronic systems must conduct electronic systems which is reliable and safe as well as responsible for the operation of the electronic system as it should be. Organizers are positioned in a State of guilt laid upon the duty to always take responsibility, except when it can be prove that the fault of the electronic system is not a discrepancy.

The problem in this study is how the principle of responsibility in the ITE Act can be applied in the law of consumer protection, as well as the attainment of legal dispute resolution in electronic transactions for business actors.

METHODOLOGY

This research is using a juridical normative research (Mukti, 2010: 34), namely legal research that put the law as a system of norms; system of norms intended will explore legal principles as well as reviewing the harmonization of legislation in the field of information and electronic transactions. In addition, an application to find out the rules in a concrete situation will be carried out study of the problems associated with electronic transactions; especially buying and selling are done with the use of electronic transactions. This research is a descriptive analytical (adi Rianto. 2004: 130) that expose data observations without held testing hypotheses and exploratory (Rianto adi. 2004: 3)

ANALYSIS RESULTS

There are four principles of liability that is known and can be applied into the implementation of consumer protection. The principles are the liability based on fault, the liability based on the presumption, the liability based on breach actions of contract, and absolute liability that are further described below (Raharjo 2006: 51). Statute No. 8 1999 embraced this theory based on article 19, paragraph (5) which States that: "business actors freed from the responsibility of damages if it can be

prove that the errors were the fault of consumers". Meanwhile, in criminal law, about the eradication of corruption according to law number 3 of 1971, this principle has been applied, and based on the new legislation, namely Act No. 31 of 1999 jo. Act No. 25 of 2001 concerning the eradication of criminal acts of corruption, this principle is emphasized. So the fundamental of this principle invites debate, especially if associated with the principle of presumption of innocence.

The theory of liability without having to prove any mistake or in other words, is a principle that looked into a mistake as an irrelevant question whether it is fact or not. Originally, the law regarding to the liability of tort law is not concerned about the responsibility of moral or elements of the offender's fault. Upon doing so, Ames suggested that with growing moral awareness from the community, then an ethical standard of one's deeds can have replaced standard that is not based on ethics. The formula of top risks of a man acts at his peril or someone is always liable even if not at fault (iability without fault) has been replaced with the dogma of no liability without fault. In modern society, the sole of liability are not based on any element of fault should be viewed from a social value considerations, that someone who undertake activities to gain advantage for himself must bear the risks resulting from its activities. According to Komar Kantaatmaja, professional responsibility is the legal liability in connection with the professional services provided to the client. This professional responsibility can arise, because the providers of professional services do not meet the agreed-upon agreement with the client or result of the service provider's negligence resulted in the occurrence of tort law.

The liability of new trade has a limit of harmful products such as poison, explosive devices, and weapons. In its development of the expanded responsibility on products that are not harmful but can cause death if there is a fault in the production process the acknowledgment, for example in the production of food, vehicles, and others. The Development of product liability for consumers in Indonesia is based on the provisions of the Consumer Protection Act, in this case using some type of liability law, that is product liability. As for the responsible party providing redress to consumers in all kinds of legal liability are business actors, i.e. when goods/services produced and/or traded result in losses on the part of consumers. Therefore, all types of legal liability are called subject liability, the legal liability of the legal subject (individual person or legal entity).

Product liability is the liability of civil liability of the perpetrators of the business goods (it can include other parties in the chain of distribution) to indemnify certain parties (buyers, users, or even a third party), for damage to objects, injury and/or death as a result of using the product produced by the perpetrators of such business. Product liability is a legal civil institution, which is a deviation from the law of tort. Therefore, the product liability which aims at protecting consumers consumer to prove liability eliminates mistakes, and instead trade business actors were obliged to prove that he did nothing wrong. A logical consequence of legal construction that business actors must prove that he is not guilty that trade is considered to have made a mistake immediately after consumers suffer losses due to use some type of liability law, that one is liability product. As for the responsible party providing redress to consumers in all kinds of legal liability are business actors, i.e. when goods/services produced and/or traded result in losses on the part of consumers. Therefore, all types of legal liability are called subject liability, the legal liability of the legal subject (individual person or legal entity).

Product liability is a legal institution, which is relatively new in Indonesia. Nevertheless, consumer protection laws have embraced product liability using the absolute liability as a deviation from the error liability accompanied by transfer of the burden of proof of error items consumer to business actors. This is in line with the objective of consumer protection, both nationally and regionally, in the area of free trade. Applied to product liability in law number 8 of 1999 against business actors who produces the goods and then it turns out the item is causing the damage, pollution and/or loss on physical, soul and goods belonging to the consumer, then the consequences applied to product liability business actors can be penalized as follows: Based on article 19 law number 8 in 1999, business actors (in this case trade) whose harm consumers with their products, must provide indemnification form: refunds, replacement of goods similar or equivalent value, health care, the granting of compensation in accordance with the provisions of the applicable legislation. The essence of product liability is the liability on the basis of tort; elements of tort law, element of error, Item loss., causal relationships between Elements in tort damages arising.

Historically, product liability arises because of an imbalance of responsibility between business actors and consumers, where the perpetrator attempts initially implement a strategy product oriented in marketing its products, should change his strategy to be consumer oriented. The historical development of the world and then noted the growing awareness of human dignity which the world will have to be respected the rights that should be championed and given a high profile in human civilization. An original relationship principle emphasize on consumer awareness on its own to protect itself, turning into the consciousness of the perpetrator's efforts to protect consumers. Product liability in General is the responsibility of the perpetrators of the attempt to products that have been brought into circulation that cause or result in losses due to defects inherent in the product. Furthermore, the definition of can be spelled out again that the responsibility in question here includes contractual liability or based on an agreement and statutory responsibilities on the basis of unlawful acts. Understanding the principals of these definitions is the attempt of business actors, wholesale, supplier and retailer. The products include things move or immovable that has been brought about by the perp effort into circulation, meaning that there has been in the trade because of the actions of the perpetrators of the attempt. The loss is the definition above is the loss incurred or caused by product and product damage or decimation, while understanding the inherent defects in the product's deficiency in the product that causes the incidence of loss.

According to Roszkowski, product liability is limited to the jurisdiction that imposes responsibility on criminals endeavor and a provider of other items of bodily harm and material losses caused by the product sold.

Furthermore, N.E. Algra & H.W.R. Gokkel providing a definition of product liability as follows: "the responsibility of the owner of the factory for the goods it produces, for example related to the health of purchasers, users (consumers) or security products". Agnes M. Toar argued that notions of product liability is actually referring to the responsibility of the perpetrators of the attempt can be defined as follows: "the responsibility of the perpetrators of the attempt to products that are brought into circulation which give rise or cause harm due to defects inherent in these products".

Based on the above, the visible emphasis on product that is generally defined as goods that are real tangible goods, whether moving or not moving. However in relation to the issue of the responsibility of business actors (product liability), products not only in the form of tangible goods, but also included the nature of intangible goods, such as

electricity, natural products (e.g. food pets with other types of animals), writing, or home real estate (e.g. a house). Including in terms of the product not merely of a product, which is already so overall, but also including components and spare parts. It is expressed also by Endang Saefullah that expands the scope of the above with the following understanding, "Product liability is a legal responsibility of the person or entity that produces a product (producer, manufacturer) or of persons or entities that process a product (assembler) or from the person or entity that sells or distributes (seller, distributor) such product".

According to The 1973 Hague Convention on the Law Applicable to Products Liability, also known as The Hague Convention, product liability apply to those persons/parties, namely: Entrepreneurs of goods/final product or component part, entrepreneurs from the stuff of nature (natural product), a Supplier of something the product. Others, including the entrepreneur workshop and warehousing in network provision/distribution or preparation of an item.

Since April 20, 1999, has started a new sheet in consumer protection efforts in Indonesia, because on that date passed Act No. 5 of 1999 on the protection of consumers. Consumer protection efforts, which previously only relied on the legislation, are not specifically aimed at protecting consumers, since then it has gained its own settings. Certainly it has the question, why the consumers never get attention since Indonesia proclaimed the independence of Indonesia? Specifically, that year get priority attention and legal protection. The questions will be more prominent, while put forward the fact that 18 (eighteen) years before, on June 22, 1981, the Consumer Agency Indonesia Foundation has finished composing and propose to the Government a draft law on consumer protection issues.

Indonesia's consumer protection law No. 8 in 1999 classifies several types of legal liability for civil, i.e. contractual liability, product liability, professional liability, criminal liability, and administrative liability. As for the parties who should be responsible for providing compensation to consumers in all kinds of legal liability of business actors, i.e. when the goods and/or services that are produced and/or diperdagangkannya cause any harm on the part of consumers. Therefore, all types of legal liability are called subject liability, the legal liability of the subject of law.

As has been stated above, a product to the consumer is usually through a variety of ways, such as agents, wholesalers, distributors, and retail traders, whereas its products on its own, particularly for products whose number of processed through what's called in the industry. Industrial activity is processing or producing goods on a large scale in which used factories and equipment in large quantities. From the definition of the industry can be concluded, that the product/goods produced in an industry's products en masse and using equipment that is multi-faceted and in great numbers. Especially with the development of the technology world is the equipment used in the production process in a major way is the high-tech equipment that is not easily understood by laypersons that are not trained specifically for the agility.

As a result of the industrialization process in processing such products arising legal issues in connection with the goods or the defective product to the detriment of the consumer, either financial, non financial sense, even the loss of the soul. The problem is that in order to prosecute the victim caused by the product or the defective goods. Based on the General provisions applicable to Civil Law, the consumers who suffer losses as a result of products or goods that are defective can sue the principal effort directly, or sue the merchant from which the item is purchased. Demands put forward based had the occurrence in tort (as set forth in Section 1365 KUH Perdata) by

business actors or others related to the process of production or distribution of products or goods are defective.

However if a consumer who suffered such losses would demand the perpetrator's efforts (including traders, wholesalers, distributors, agents) based on tort law, then the party will face a number of constraints that will be difficult to obtain compensation. Because of various difficulties encountered by the consumer, then the law of product liability imposed absolute liability principle. By implementing the principle of absolute responsibility, every person/consumers who feel aggrieved as a result of products or goods that are defective or unsafe can demand compensation without having to dispute the presence or absence of the error element in the trade.

In addition, there are other reasons which reinforce the application of absolute liability which is based on the Social Climate Theory Manufacturer is the party that is in a better financial position to bear the brunt of the losses, and in every case obliged him to replace the losses, they will forward such losses and share the risks to the parties by the way of closing the insurance premiums included in the calculation of the price of goods production results. The difficulties in proving the existence of the element of fault in a process manufacturing such complex at large companies (industry) for a customer/victim/plaintiff individually. But it also acknowledged publicly that the victim/consumer must show that at the time of the occurrence of the loss of these products is the principle in such circumstances the time submitted by trade, it is not held modifications. Although the system of liability in product liability applies the principle of absolute liability, the offender may attempt to break free from his responsibilities, both for the whole or for parts.

Another important thing that needs serious attention in the era of industrialization is the field of law, particularly about accountability for the product. Product liability problem is closely related to the issue of competition in the era of free trade and growing with the increasing attention to consumer protection. The core problem lies in the quality of the resulting product.

Currently, Indonesia has had legislation that specifically regulates the responsibility of business actors, in Act No. 4 of 1999 on the protection of consumers. Other legislation related to consumer interests, among others is KUHD, Act No. 10 Of 1961 concerning the goods, Act No. 37 of 2009 about health.

Therefore, when a consumer suffers losses due to product defect and wants to sue the perpetrator attempts before the enactment of Act No. 8 in 1999, then the law is merely based on tort law (article 1365 KUH Perdata). As stated on facing the difficulties for victims to obtain compensation through legal procedures. The business actors will be more cautious in producing goods before enter to the market so that consumers, both inside and outside the country, would not hesitate to buy products from Indonesia. Likewise, when the consciousness of the principals of business/industrialist against the law on the responsibility of business actors do not exist, it is feared will be no good to the existence of national and industrial world on the competitiveness of national products, particularly abroad.

Nevertheless, by enacting the principle of absolute liability in the law of product liability does not mean the business actors have not protection. The consumer is still given the chance to break free from his responsibilities in certain matters stated in the Act. In addition, the business actors can also insure their responsibilities, so that it is not economically meaningful loss. In Indonesia, the law No. 8 in 1999 that its essence regulate the behavior of business actors with the goal of keeping the consumer is

protected legally over the products that produced by the trade or known as product liability.

CONCLUSION

The liability of business actors are involved in the formulation of article 19 of consumer protection legislation. The theory of liability product should be has preventive effort of business actors in carry out the liability of buyer, consumer and the security of products. The application of liability product such as industrial product violations committed by business actor. The consumers who feel harmed can sue perpetrators based on article 28 UUPK. It gives a legal ramification to the business actor who can demonstrate a loss is not a fault free.

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Feasibility Analysis of Investment Project on Housing Development in Thailand with Valuation Technique based on Economy Factor

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Abstract

This research concerns feasibility analysis of investment project in housing development in Thailand with valuation technique based on economy factor. The researchers brought conversion factor which World Bank developed in 1997 to apply with financial return calculation of the project. The results showed that the project was highly possible to invest. By considering financial ratio which was valued based on economy factor, IRR value reached 17.43%. This value was higher than other return on investment such as deposit with bank, debt instruments investment, gold, common stock, and NPV was higher than zero, equal to 50,706,519.93 Baht. Whereas other financial ratio had appropriate value, including profitability index which reached 1.10 and return on investment which was ROA, ROE, GPM, and OPM equal to 29%, 22%, 97%, and 91% respectively.

For a conclusion of administrative affairs according to business plan strategy, it was found that real estate entrepreneurs should establish salesperson skill training to know business process and condition, especially knowledge about Building Control Act, customer service process, and should emphasize on a location of project which was near to public utility, official place, and department store. Moreover, they had to provide sales promotion by giving a discount and gift, for example, air conditioning, motorcycle, etc. The important thing was to refund money back to customers in case that a credit was not valid, and the entrepreneurs should put an importance on advertising and making public relation about housing development project via media such as banner, local radio, television, and local newspaper.

Keywords: Investment feasibility, housing development, valuation based on economy factor

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Introduction

Housing as part of the four factors is necessary for human life. The housing needs of individual are diversities according to the personal and economic status. The demand for housing in economic shall react through a theory of consumer behavior, which means that consumers would consider in buying a home subject to the utility that consumers consider at one time. That means the entrepreneur needs to conduct marketing strategy and execution with its maximum utility in view of the consumer or someone who would like to buy a house. The current housing demand of the consumers with a variety of real estate types such as single houses, semi-detached houses and townhouses. And because of different equity and attribute of real estate such as location, plan and facility which are considered as a key capital for entrepreneur. If construction costs are up by the economic situation, such as an inflation of the inflation target, the baht depreciation until it's increasingly affected to costs of essential imported materials for the construction. This may affect to quality of construction materials. It is considered that this type of business is high competition. The housing scheme must take the quality of the construction materials into account. In addition, the construction plans need to meet the needs of customers. Currently, the entrepreneur before start to run the business needs to conduct market research and analyze the feasibility of the project in order to evaluate the financial viability which is closed to the study of Saran Ukraihasa (2004), who studied the financial feasibility of the project: In case of town house in Pracharat Road area, Bang Sue Bangkok, the entrepreneur needs to analyze the feasibility to determine the viability of the project investment such as the net present value (NPV), internal rate of return (IRR) and benefit/ cost ratio (B / C Ratio), etc. It also needs to be studied about demand of costumers further before starting the project. The entrepreneur may acknowledge that their investment in the housing projects is uncertainty with the amount of money in several million Baht. Therefore, it is necessary to study carefully for the impacts and opportunities of investment by study the feasibility for investment in real estate. The analysis aimed to evaluate the potential of the project, both positive and negative in all aspects such as evaluation of satisfaction, expectations and the housing demands of consumers. As many researches can be seen from both the domestic and international such as the study of Joseph S.K. Lai (1999), who conducted a study regarding the evaluation of comparative facilities management for housing projects. The results showed that the fundamental factors for housing projects beside the quality of design and construction, facility also must take into account. It will give residents a better quality of life. Therefore, the study of demands before starting of the project is very important. It is not only informed the need of design and decoration but also guild the security, cleaning, repair and maintenance. The research of AMM Liu (2011), who studied satisfaction in housing scheme: A view of Hong Kong. The results showed that most of sample groups focused on the location of the project with the physical facilities and safety as the first priorities. This is compatible to the research of Ubonrat. Suwanboriboon (2003), who conducted a study to the satisfaction of the buyers to the housing project of Supalai Public Company Limited,

the results showed that the demographic characteristics of different buyers has no different for the overall satisfaction with housing project of Supalai Public Company Limited in a large scale. The structure of the housing projects focuses on facility and location with the positive appearance. The study of Pattara Thongnon (2004) about the expectations and trends of consumer behavior for buying decisions, who visited the exhibition of Thailand Asset Management Corporation, showed that the visitors will expect to buy the assets of the Thailand Asset Management Corporation based on price, quality and location. Market promotion is associated with decision behavior to buy a house.

The analysis of the feasibility of the project investment in the past, the entrepreneur will evaluate by the experience of management team. However, the current economic situation, as well as consumer behavior is more complex. It is important to use the techniques to analyze the feasibility of project investment, especially in housing industry by using Marketing Research to find the needs of customers and pricing adjustment, which will reflect the actual cost of production. Amid economic instability, using price adjustment of investment projects in accordance with project construction costs developed by the World Bank to consider the producer price index in case the entrepreneur develops the property and construction project. From the above phenomenon, the researcher is interested in the study to analyze the feasibility for investment in housing by modulation techniques based on economic factors. The two purposes are: 1) to analyze the possibility of administrative affairs and strategic planning for housing business 2) to analyze the feasibility for investment in real estate with price adjustments by economic factors to analyzing the return value of the investment in the real estate business.

Methodology

In this study, the research tool was a questionnaire, interview and a show-card. Most of analysis picked from the primary data. In order to meet the objectives set by the researchers, data analysis in this research that was used for statistical data analysis are: 1) descriptive statistics, which is used to describe the statistics of personal information and the needs of the respondents. Presentation consists of (1) Frequency Table (Chatchawan Ruangprapan, 1994), (2) percentage (Boonjai Srisathitnaragul 2002: 293) (3), mean (Choosri Wongrattana 1998: 166) together with chi square statistics to test the hypothesis relations of the data in the study (Sutthano Srisai 2004: 124). The target groups of this research are the consumer population in the western part of the country's four provinces, such as Kanchanaburi, Ratchaburi, Nakorn Pathom and Petchaburi.

The studying procedure is determined in 4 steps including;

1. Conducting marketing research in order to determine consumer demand for marketing strategies. The study to those who are looking to purchase a house and existing resident which came from uncertain number of population. So the researchers had to determine the sample size in this study based on a formula of unknown population number to calculate the sample (Prasobchai Pasunon 2012) as follows.

$$n = \frac{Z^2 pq}{B^2} = \frac{(1.96)^2(0.5)(0.5)}{0.05^2} = 385.16$$

To obtain the better sample, the quantity of sample will be increased to 4 percent equal to 15 samples to obtain 400 samples for entire research. Feasibility sampling was used to select Convenience Sampling with Purposive Sampling and questionnaires to the samples in the western provinces.

2. To analyze the potential for investment in a housing project with tactical of value adjustments by economic factors, see the information in Table 1.

Table 1 shows the value of economic factors.

Cost	Conversion Factor
Land	0.91
Land Development	0.92
Construction	0.93
Building design	0.94
Deeds and permission	0.95
Other development	0.96
Service	0.97
Commission	0.98
Tax	0.99

Source: World Bank, 1997. References (Patcharee Adisornchai, 2009)

3. The income, expenses (cost) to not make the investment, income statement, balance sheet, and cash flow statements and return period.

4. To calculate the ratio of return on the investment by using ratio (Cohn & Geske, 1990) and (Thirawat Chantuk, 2012) follows.

- Internal rate of return (IRR) is the rate of internally return, must be greater than the return on other investment, such as money deposit, bond, gold and stock exchange.
- A net present value (NPV) is the present value, must be greater than zero, so it would be potential for investment.
- Profitability Index (PI) is the index of profit, greater than one index is potential for investment.
- Gross profit margin (GPM) is the primary gross margin to determine the effectiveness of the operation. High Percentage, high returns.
- Operating Profit Margin (OPM) is the profit from work. The higher percentage, the more potential for investment.
- Net Profit Margin (NPM) is the net profit margin. The higher percentage, the better for investment.
- Break event point (BEP) is the return of actual cost.
- Debt / Equity Ratio are the ratio of loans divided by shareholders' equity.
- Return on equity (ROE) is net income divided by shareholders' equity (Return on Investment).
- Ratio of net profit to total assets (ROA) is income divided by assets, the higher the percentage is better (Return on assets).

The conceptual framework shown in Figure1.

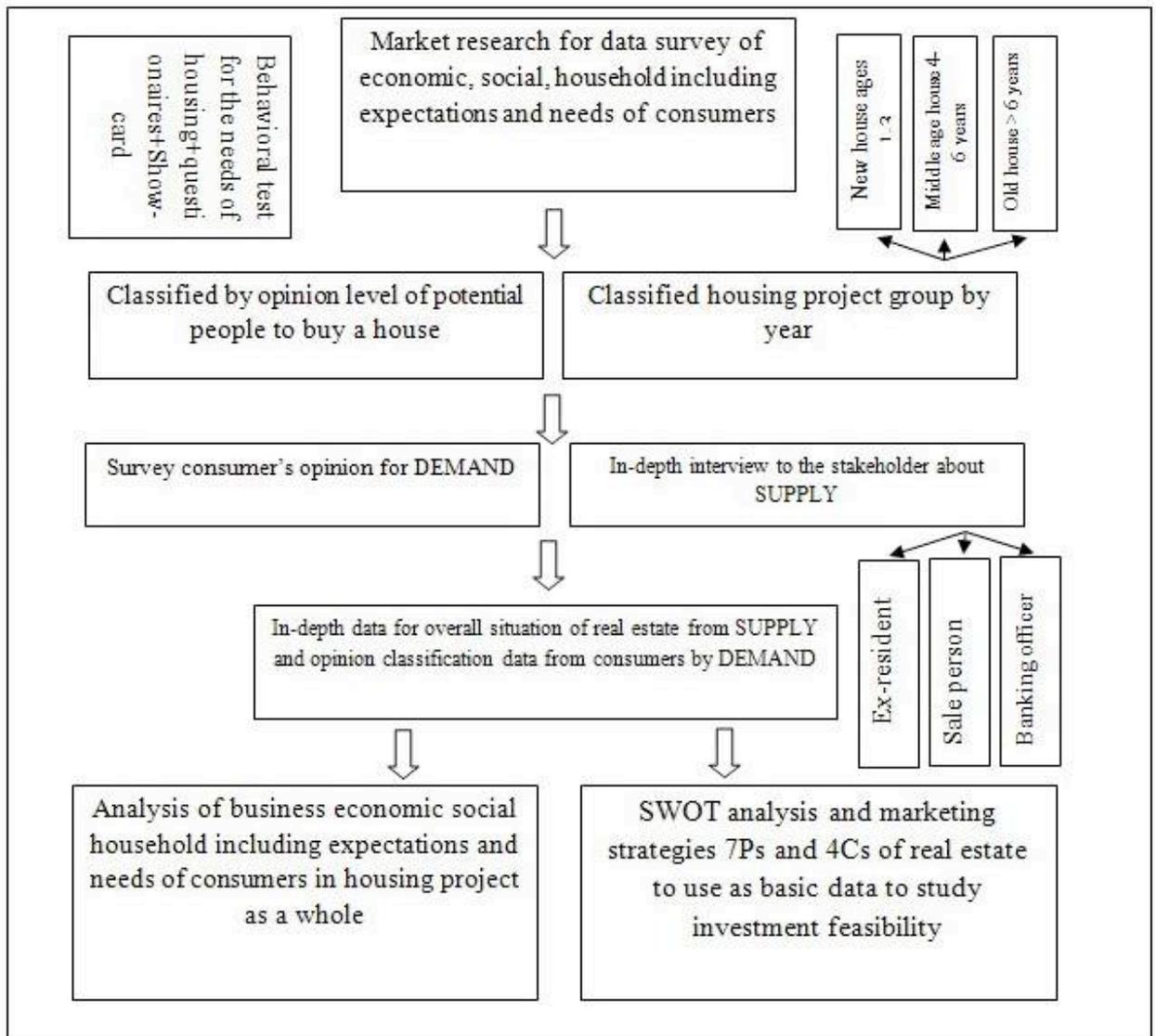


Figure 1: Conceptual framework of marketing research

Figure 1 shows the procedure of the marketing research. The research is based on the conceptual framework of the research in the first step with market research, which is essential to analyze the feasibility of the project. Pilot test was conducted by the researcher by using a behavioral test to 100 samples about their needs to buy a house in order to classify sample of the consumer who has the opportunity to buy a house by conventional career, while manufacturers are classified by entrepreneur group and ages of housing projects. To explore the in-depth data of the condition of the housing business from supply and the opinions of consumers data from DEMAND subject to the marketing mix strategies 7Ps (Product, Price, Place, Promotion, People, Physical, Process) and 4Cs (Customer, Cost, Convenience, Communication) of 400 samples. The researcher wants to get the results of the research beside the analysis of the business environment, economic, social and household as a whole as well as the expectations and needs of consumers in the real estate business. A SWOT analysis and the implementation of marketing strategies, 7Ps 4Cs of a housing project are

required to use as a preliminary study of the investment feasibility of projects. And can be linked to the concept of research from market research to analyze the feasibility of the project as in Figure 2.

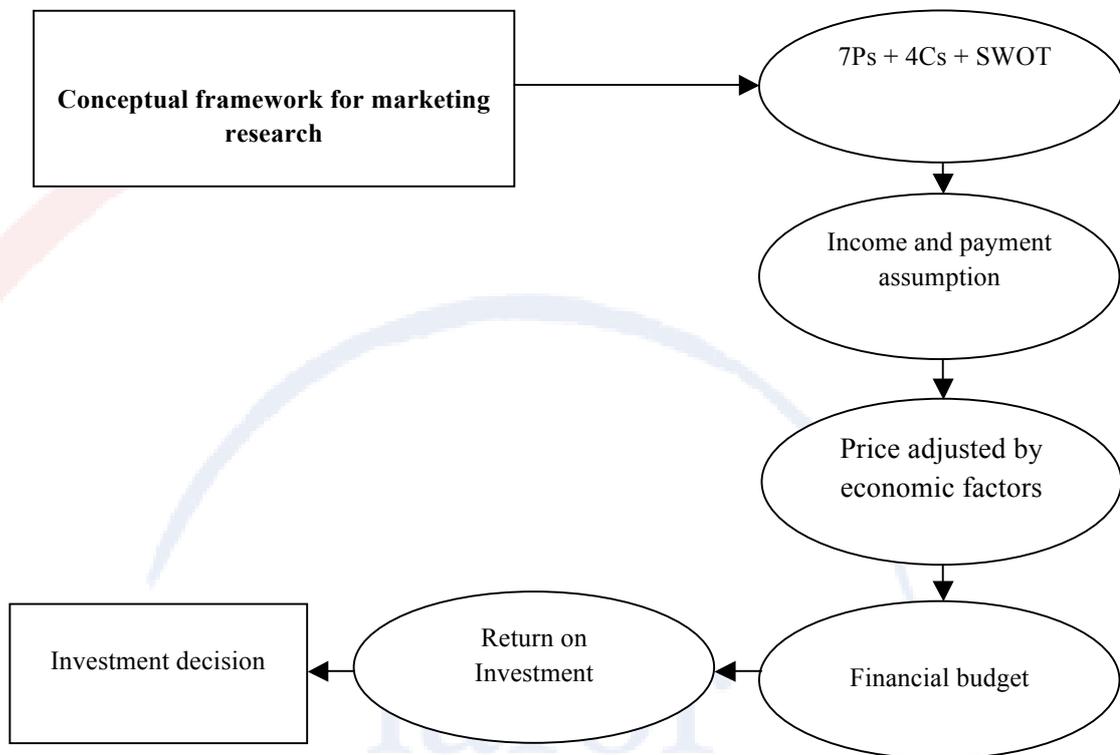


Figure 2: Conceptual framework of the research

Results

It is found that the analysis of potential business administration with strategic planning for real estate contains useful information on the key marketing decisions. Most demand of strategic planning and business management in product are two floors homes, followed by two semi-detached where consumers consider that it is good-looking and sophisticated and prefer to buy a house with fully furnished. In terms of attributes, a durable structure house is the most preferable. If consider to the price, it is found that most of the mortgage plan are between 5,000 to 15,000 per month during period of 10 to 15 years, which is able to analyze that consumers have capacity to buy a house less than 2 million baht, while the most preferable about place are likely to have living space from 150 to 200 square meters and located at easy access adjacent to the main road and public transportation including all facilities within the project such as a convenience store, restaurants and a park . In terms of promotion, it should be the motivated promotion mostly the air-conditioned and motorbikes. In addition, if the loan is not being approved, in this case the project must return deposit money to client. The after-sales service in case of robbery, floods, power failure, etc. In case of people, the security guard is most wanted and its reliable

qualifications are required as well as good knowledge about the project. The transferred process is preferred to work out within one week and must be quick and easy to understand. For physical, tranquil environment for relax is preferable. In case of natural disasters, the housing purchase is turn out to be slowdown and it is able to summarize the results of the correlation analysis of consumers' opinions for management and marketing planning as shown in Table 2.

H0: Different personal factors of customers are not affected to 7Ps.

H1: Different personal factors of customers are affected to 7Ps.

Table 2: Relationship analysis between personal factors and 7Ps.

Personnel factors	Product	Price	Place	Promotion
Sex (Female)	H₁ affected (P-Value = .005)	H₁ affected (P-Value = .035)	H₀ not affected (P-Value = .057)	H₀ not affected (P-Value = .113)
Age (20-30 years old)	H₀ not affected (P-Value = .096)	H₀ not affected (P-Value = .195)	H₁ affected (P-Value = .037)	H₁ affected (P-Value = .005)
Education (Bachelor degree)	H₁ affected (P-Value = .002)	H₁ affected (P-Value = .002)	not affected (P-Value = .088)	H₁ affected (P-Value = .000)
Career (Self-employed)	H₀ not affected (P-Value = .093)	H₁ affected (P-Value = .093)	H₁ affected (P-Value = .000)	H₁ affected (P-Value = .000)
Status (Single)	H₁ affected (P-Value = .002)	H₁ affected (P-Value = .002)	H₀ not affected (P-Value = .067)	H₁ affected (P-Value = .011)
Residence status (Resident)	H₁ affected (P-Value = .038)	H₁ affected (P-Value = .022)	H₀ not affected (P-Value = .119)	H₁ affected (P-Value = .000)
Family members (up to 5 persons)	not affected (P-Value = .073)	H₁ affected (P-Value = .003)	H₀ not affected (P-Value = .138)	H₁ affected (P-Value = .000)
Personal salaries per month (10,000-15,000 Baht)	H₁ affected (P-Value = .000)	H₁ affected (P-Value = .000)	H₁ affected (P-Value = .019)	H₁ affected (P-Value = .000)
Family salaries per month (20,000-30,000 Baht)	H₁ affected (P-Value = .000)	H₁ affected (P-Value = .001)	H₁ affected (P-Value = .000)	H₁ affected (P-Value = .030)
Personal Factor	People	Process		Physical

Sex (Female)	H_1 affected (P-Value = .011)	H_0 not affected (P-Value = .461)	H_0 not affected (P-Value = .361)
Age (20-30 years old)	H_1 affected (P-Value = .000)	H_0 not affected (P-Value = .061)	H_1 affected (P-Value = .003)
Education (Bachelor degree)	H_1 affected (P-Value = .002)	H_1 affected (P-Value = .003)	H_1 affected (P-Value = .000)
Career (Self-employed)	H_1 affected (P-Value = .018)	H_0 not affected (P-Value = .237)	H_0 not affected (P-Value = .818)
Status (Single)	H_1 affected (P-Value = .010)	H_1 affected (P-Value = .005)	H_1 affected (P-Value = .010)
Residence status (Resident)	H_1 affected (P-Value = .000)	H_1 affected (P-Value = .002)	H_1 affected (P-Value = .044)
Family members (up to 5 persons)	H_1 affected (P-Value = .022)	H_1 affected (P-Value = .000)	H_1 affected (P-Value = .000)
Personal salaries per month (10,000-15,000 Baht)	H_1 affected (P-Value = .013)	H_1 affected (P-Value = .013)	H_1 not affected (P-Value = .089)
Family salaries per month (20,000-30,000 Baht)	H_1 affected (P-Value = .000)	H_1 affected (P-Value = .005)	H_1 affected (P-Value = .006)

Criteria of Crosstab Chi-square values came from calculation more than standard value or Crosstab Chi-square P-Value < Alpha of .05 to accept H_1 (Alternative hypothesis) reject H_0 (Null hypothesis).

As value adjustment data based on the economic factors, it is found that categories of capital to be adjust the value are included costs of land, land development, construction, building design, deeds separation, allocation license and other development, operations, fee and commission as well as tax payment. It is able to calculate percentage of income, as shown in Table 3 (which does not calculate the sensitivity for investment).

Table 3: The financial ratio

Financial Ratio	
Internal Rate of Return : IRR	17.43%
Net Present Value : NPV	50,706,519.93
Profitability Index : PI	1.10
Gross Profit Margin: GPM	97%
Operating Profit Margin: OPM	91%
Net Profit Margin: NPM	60%
Break Event Point : BEP	12,084,625.87
Debt to Equity Ratio : D/E Ratio	0.59
Return on Equity : ROE	29%
Return on Asset: ROA	22%

Conclusion

The results showed that the real estate development business should come up with strategic planning in business operations, such as staff training for a greater potential for knowledge of the building codes, customer service procedures, development of housing quality, housing design meets customer's demand, on-going marketing plan in order to reach the potential customers as much as possible and able to select healthy location nearby facilities, official place and department stores, promotional discounts to customers with premium amenities such as air conditioning and motorcycle Including a refund of the credit in case the credit of customer was rejected and provide for the credit institution to join the program as an option. The on-going advertising public relations about the product must be spoken out along with market research every times before making decision on investment to reduce the risk of administration.

While the analysis of the investment possibility in housing projects with technical of price adjustments technique by economic factors. The division of the cost of the land, land development, construction, design, allocation license, other development, operations, fee and commission, tax expenditures. After price adjusted by economic factors and then the financial ratios can be used to analyze the investment feasibility. Since the ratio of the value adjustment through the financial and economic factors showed that the IRR is greater than the return on other investment, such as bank deposit, bond, gold and shares (IRR has a greater value than the return on other investment then it is potential for investment) the NPV is greater than zero then it is potential for investment and the PI is greater than one then it is potential for investment, while the profit index is equal or more than one at 1.10 and if the return on investment ROA, ROE, GPM and OPM is equal to 29%, 22%, 97% and 91%

respectively. Thus, by considering the financial ratio as above, the researcher sees that the project is possible for investment.

Suggestions

The results showed that the housing entrepreneur should not set the price too high. Most consumers want the price not over than 2 million with marketing promotion such as discounts and gifts. Before start to invest in this sector, it is recommended to conduct marketing research for a decision making. This will bring to the knowledge of consumer's need and the competitive situation in the market.

For further research, as this research is focusing only four provinces of Kanchanaburi, Ratchaburi, Nakorn Pathom and Petchaburi, therefore, the researcher should conduct the research by cover all samples group in all regions of Thailand to obtain data for comparison the needs of the consumer that affected to the analysis of investment feasibility in housing project. Conversion Factor should be adjusted by using the recent Producer Price Index of Thailand to find the appropriate data for a case study in Thailand.

Acknowledgment

The research was completed very well by a collaboration of the sample from people in the Western of Thailand for giving various data which is very useful for the research. This time, I would like take this opportunity to thank everyone especially professors for textbooks and materials as my reference. So this research can contain with the most substantial knowledge for further improvement and study.

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Behavior Which Promoted Health Condition of Elders in Urban Areas: Effect of Social Management in Thailand

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Abstract

This research concerns the study of behavior, which promoted health condition of elder in urban area which represented effect of Social Management in Thailand. The researchers applied the concept as a framework to develop a form of social management by creating health promotion activity for elder. There were 3 intentions from the research: 1) Study behavior which promoted health condition of elder in alternative medicine activity which was Thai massage, 2) Study behavior which really promoted health condition of elder in Yoga recreation activity, and 3) Develop social management approach under health promotion activity for elder by using quantitative research technique. The research included a case study of health promotion in elder by Thai massage with 400 samples, and a case study of health promotion in elder by Yoga recreation activity with 400 samples (Alpha 0.05). The statistics applied in the research were Descriptive Statistics, Factor Analysis, Relation Test, Multiple Regression Analysis, and Pearson's Chi-Squared test to analyze factors, which affected social management level.

According to the results, it was found that elder in Thailand who lived in urban area put an importance on health care trend. They were likely to choose Thai massage as alternative medicine activity. Public sector or any related agency must develop 3 level of continuous social management. The first level was to manage through mechanism of public sector which provided health promotion. The second level was to manage through municipal administration system. The last level was to manage sustainable health promotion with community-based approach.

Keywords: Health condition, elder, social management

Introduction

Thailand is currently going through demographic change and entering the era of aging population. According to the studies of relevant institutions, College of Population Studies, Chulalongkorn University and Institute for Population and Social Research, Mahidol University, it is estimated that the elder will be accounting for approximately 12% of the country's population (National Statistical Office of Thailand, 2013). National Economic and Social Development Board of Thailand has also projected the median age of population in Thailand in 2000 – 2030 and the projection indicated that in 20 years, the median age of population in Thailand will be reaching 40, which means half of the population is age 40 and over, while the other half is under age 40. The aforementioned situation showed that the number of elders in Thailand is constantly accelerating, as a result of technology advancement, education development and health care system improvement. (National Economic and Social Development Board of Thailand, 2013)

The aging demographic trend in Thailand has various impacts on social management, for examples, impact on productivity of labor intensive industry sectors, impact on the government's social welfare management, impact on elderly health promoting management as well as impact on measures, schemes and plans which may influence social management of both public and private sectors (Foundation of Thai Gerontology Research and Development Institute, 2012). Hence, the country's social management system has been compelled to prepare for such situation for over a decade; public and private sectors have readily formulated measures to address the challenges posed by aging population in Thailand. The major measures include promote health and wellness of elders and encourage communities to provide comprehensive care system for elders. (Research Strategic Plan: Aging Society during 2012 - 2016, 2013)

With the effort of Department of Health, Ministry of Public Health to put forward the elderly health promoting campaign, which is a part of the paradigm of social management aiming to develop a process that will enhance elders' ability to take care of themselves, various measures are formulated to control the factors that indicate good health and promote healthier life for elders in all dimensions –physical, mental and social. The important measures include promote good personal hygiene and health of the elders, enhance elders' ability to take care of themselves, encourage family members and communities to care for the elders and support elders to have a healthy life, give elders an opportunity to show their competency to take care of themselves, their families and their communities, as well as advocate health-enhancing Behavior such as exercising (Department of Health, 2013). If elders are able to fully maintain their physical and mental wellness, they will be able to care for themselves and lessen their dependence on communities and the government could further cut down on the budget using for elderly-related social management.

Amid various health promotion campaigns in Thailand, elderly health care trends are being applied as a measure for improving their quality of life and various healthy activities are being promoted to improve their physical and mental wellness. Since more and more older persons are facing health problems, due to lack of exercise, tension caused by urban environment, family and economy problems as well as food safety problems, the government therefore needs to encourage people to dependently

care for themselves, one of the most popular health promoting activities is Yoga recreation activity and Thai massage, which is one of alternative medical therapies. The achievement of social management in primary level is mostly seen in the elders in urban areas. (Noppawan Chongwattana and Kua Wongboonsin, 1998)

Elders are likely to maintain their physical strength by practicing Yoga as a recreation activity and getting Thai massage as an alternative medical therapy. The reason is that Yoga is believed to be able to help maintaining body balance and stretching muscles. Yoga practitioners will also feel relax because of better blood circulation. Moreover, there are a variety of yoga techniques available to cater to various age groups and genders, even the patients suffered from various illnesses can also practice Yoga. (Phyathai Hospital, 2013) While Thai massage as an alternative medical therapy is also becoming more well-known and more popular, not only among Thai people, but also among foreigners. Since Thai massage is believed to bring a great deal of benefits, for examples, improving blood circulation, relieving pain and muscle tension, increasing flexibility and energy (Ministry of Culture, Department of Cultural Promotion, 2013). Supposing the aforementioned activities can actually help to improve health condition of elders, it will represent a success of the country's social management in higher level and it could also help to cut down the budget using on elderly wellness and welfare promotion in a long term.

Considering aforementioned scenario, our research team is thus interested in studying Behavior which promotes health condition of elders in urban areas which represent effect of social management in Thailand. The researchers have applied the concept as a framework to develop a social management model by creating health promotion activity for elders. The research aims to achieve 3 purposes: 1) Study behavior which promotes health condition of elders in alternative medicine activity which is Thai massage, 2) Study behavior which promotes health condition of elder in Yoga recreation activity, and 3) Develop social management approach under health promotion activity for elders. The framework of research is illustrated in Figure 1.

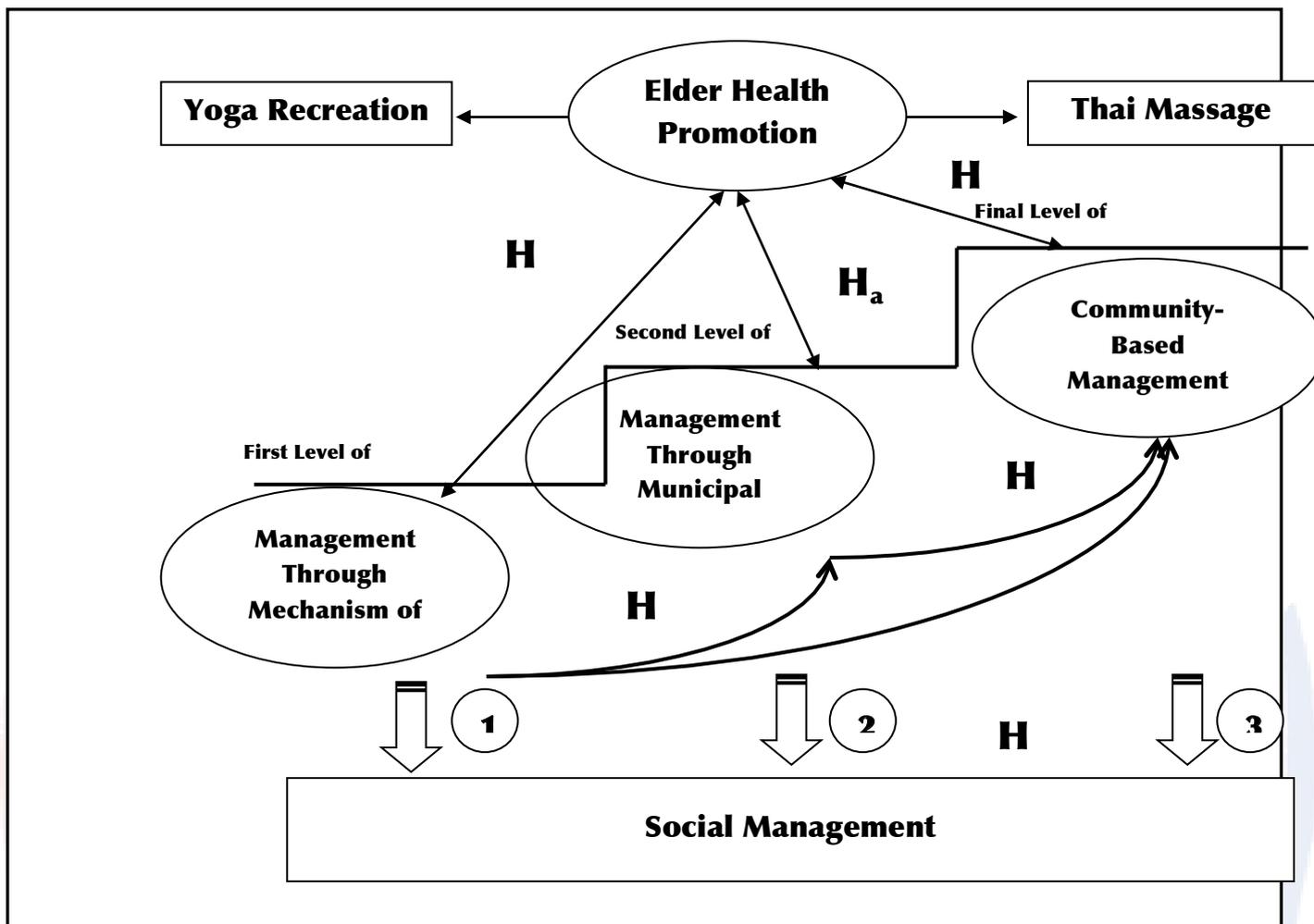


Figure 1 Research Framework

Research Methodology

The research team has applied Quantitative Research in order to analyze behavior that promotes health condition of elders which is Thai massage alternative medical therapy and study behavior that promotes health condition of elders which is Yoga recreation activity, using the analysis result of this two cases to develop social management model that will create elders' health promoting activities within the research framework. A sampling frame is restricted within the elders who live in Bangkok and metropolitan areas. The tools applied are survey letters and interview. Among 1,000 samples selected by probability sampling methods and accidental sampling techniques, 800 samples have fully completed the surveys. Survey results are collected and divided into 2 cases, 1) A case study of health promotion in elders by Thai massage alternative medical therapy with 400 samples and 2) A case study of health promotion in elders by Yoga recreation activity with 400 samples (Alpha 0.05) (Sirichai Pongvichai, 2009). As for social management model development, the team

has applied the model of health management in social management (Penchan Serrer et al, 2012), which introduces 3 levels of management. The first level is to manage through mechanism of public sectors which provide health promotion. The second level is to manage through municipal administration system. The last level is to manage sustainable health promotion with community-based approach.

The statistics applied in the research are Descriptive Statistics, including percentage and standard deviation and inferential statistics which are: 1) Factor Analysis: extracting factors effecting Behavior of the elders who practice Yoga recreation activity 2) Relation Test: testing a relationship between variables of Behavior of elders who use Thai massage as an alternative medical therapy and practice Yoga as a recreation activity and variables of social management by applying Multiple Regression Analysis (Kunlaya Vanichbuncha, 2003).

3) Factor Analysis: analyzing factors which affect social management level by applying Pearson's Chi-Squared test (Chusri Wongratana, 2007) in order to test the influence of social management levels that have continual effect within the aforementioned research framework.

Conclusion

Part I, Behavior of elders who use Thai massage as an alternative medical therapy can be analyzed and described using 4Ps marketing strategy, the research result is as following:

1. Product ($\bar{x} = 4.36$, $SD = 0.70$) the first 4 factors include 1) Safety of the massage practice 2) Confidence in quality and standard of the service, the massage service provider must be well-known and reliable. 3) Hygiene and cleanness of the service and 4) Service standards guaranteed by government agencies.

2. Price ($\bar{x} = 4.32$, $SD = 0.71$) the first 4 factors include 1) Price transparency 2) Reasonable price when comparing with service time 3) Competitive price and 4) Variable price, depends on types of services.

3. Place ($\bar{x} = 3.95$, $SD = 0.90$) the first 6 factors include 1) Spacious, convenient and relaxing service spaces 2) Open daily 3) Availability of facilities for examples, restroom and restaurant 4) Location near bus line 5) A lot of branches available to suit the customers' preference and 6) Availability of parking space.

4. Promotion ($\bar{x} = 3.95$, $SD = 1.07$) the first 4 factors include 1) Providing knowledge regarding Thai massage 2) Special services for elders 3) Discounts offered when using the service next time and 4) Advertising in wide range of media.

Part II, the factors effecting Behavior of elders who practice Yoga as a recreation activity can be extracted into 6 categories as following:

1. Social factor ($\bar{x} = 3.52$, $S.D. = 0.860$) is considered to be highly important. Its Eigen value is 8.003. It can be applied to explain 18.189% of variance in Yoga practice. It could be arranged in order of importance as following 1) Yoga practice helps to improve the relationship between the practitioners and their friends or their companies. 2) Yoga practice gives them a chance to share experiences and exchange

opinions with other people 3) Yoga practice makes it easier to make friends and 4) Yoga practice gives them a chance to meet a lot of people.

2. Health factor ($\bar{x} = 4.40$, S.D. = 0.526) is considered to be highly important. Its Eigen value is 6.482. It can be applied to explain 14.732% of variance in Yoga practice. It could be arranged in order of importance as following: 1) Practice Yoga in order to maintain physical wellness and strength 2) Practice Yoga in order to increase energy and agility 3) Feel that Yoga exercise is suitable for themselves and 3) Feel that their health condition has evidently improved after a short period of Yoga practice.

3. Economic factor ($\bar{x} = 3.20$, S.D. = 0.986) is considered to be moderately important. Its Eigen value is 5.214. It can be applied to explain 11.851% of variance in Yoga practice. It could be arranged in order of importance as following: 1) Choose to practice Yoga because of its price 2) Choose to practice Yoga because of commuting fares and 3) Choose to practice Yoga because of their level of income.

4. Environmental factor ($\bar{x} = 3.89$, S.D. = 0.651) is considered to be highly important. Its Eigen value is 4.733. It can be applied to explain 10.757% of variance in Yoga practice. It could be arranged in order of importance as following: 1) Safety of the Yoga practice place 2) Suitability of the practice place and 3) The practice place near their homes.

5. Psychological factor ($\bar{x} = 4.05$, S.D. = 0.660) is considered to be highly important. Its Eigen value is 4.306. It can be applied to explain 9.786% of variance in Yoga practice. It could be arranged in order of importance as following: 1) Yoga makes their body stronger and their mind calmer 2) Yoga improves their self-confidence and 3) See that other people get good result from Yoga and thus want to try doing Yoga too.

6. Cultural factor ($\bar{x} = 3.35$, S.D. = 0.833) is considered to be moderately important. Its Eigen value is 2.503. It can be applied to explain 5.689% of variance in Yoga practice. It could be arranged in order of importance as following: 1) Yoga practice is applicable in every culture 2) Yoga can promote mutual culture exchange and 3) Yoga is unique in its own way, just like 'Wai' (The Thai greeting consists of a slight bow, with the palms pressed together in a prayer-like fashion) culture of Thai people.

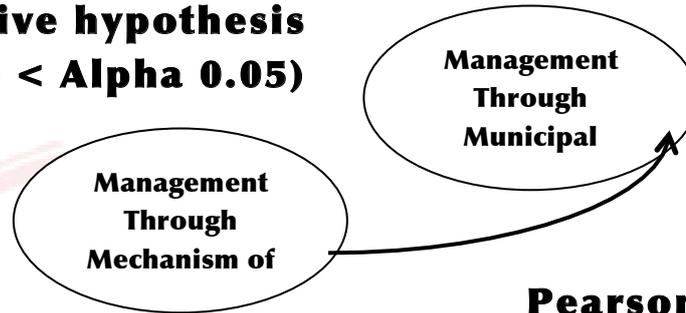
Part III, Test for relationships between the variables of Behavior which promote health condition of elders, which include Thai massage alternative medical therapy and Yoga recreation activity, and the variables of social management, using Multiple Regression Analysis. The result is shown in Table 1.

Table 1 Coefficient of correlation equation between the variables of Behavior which promote health condition of elders and the variables of social management.

Independent Variable (Marketing Mix in Activities Which Promoted Health Condition of Elders)	Dependent Variable (Social Management)								
	Management Through Mechanism of Public Sectors Providing Health Promotion (\hat{Y}_1)			Management Through Municipal Administration (\hat{Y}_2)			Community-Based Management (\hat{Y}_3)		
	bi	t	Sig.	bi	t	Sig.	bi	t	Sig.
Product (X_1)	0.31	6.35	0.00	0.28	5.17	0.00	0.09	1.66	0.10
Price (X_2)	-0.01	-0.08	0.94	-0.01	-0.10	0.92	-0.11	-1.66	0.10
Place (X_3)	0.10	2.01	0.05	0.13	2.29	0.02	0.42	7.75	0.00
Promotion (X_4)	0.01	0.23	0.82	-0.03	-0.88	0.38	-0.00	-0.03	0.97
Constant	0.40	2.93	0.00	0.71	4.69	0.00	0.76	5.10	0.00
* Alpha = 0.05	F-Test = 147.302 Sig. = 0.000 R = 0.851, R ² = 0.725 Adjusted R ² = 0.720, Durbin Watson = 2.005			F-Test = 104.268 Sig. = 0.000 R = 0.807, R ² = 0.651 Adjusted R ² = 0.644, Durbin Watson = 2.205			F-Test = 140.791 Sig. = 0.000 R = 0.846, R ² = 0.715 Adjusted R ² = 0.710, Durbin Watson = 2.348		
Accept to Ha Assumption									

Part IV, Test for the influence of social management between the variables of management through mechanism of public sectors that provide health promotion and the variables of management through municipal administration (H_b) (Nittaya Pensirinapa, 2012). See Figure 2.

H_b: Accept to Alternative hypothesis (P-value < Alpha 0.05)

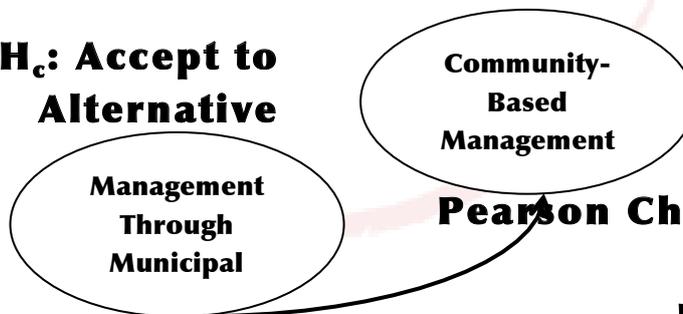


**Pearson Chi-Square (X²) : 43.057
P-value: .000
N : 800**

Figure 2 Result of statistical test for the influence of social management between the variables of management through mechanism of public sectors that provide health promotion and the variables of management through municipal administration.

Part V, Test for the influence of social management between the variables of management through municipal administration and the variables of community-based management (**H_c**) (Bandit Piriyasaisanti, 2007). See Figure 3.

H_c: Accept to Alternative



**Pearson Chi-Square (X²) : 51.023
P-value: .000
N : 800**

Figure 3 Result of statistical test for the influence of social management between the variables of management through municipal administration and the variables of community-based management.

Part VI, Test for the influence of social management between the variables of management through mechanism of public sectors that provide health promotion and the variables of community-based management (H_d) (Dechrat Sukkarmnert, 2001). See Figure 4.



Figure 4 Result of statistical test for the influence of social management between the variables of management through mechanism of public sectors that provide health promotion and the variables of community-based management

Result and Discussion & Recommendation

The research indicates that the elders who lived in urban area of Thailand put an importance on health care trend. This phenomenon reflects the achievement of the government's social management, as the government has readily formulated plans to address the challenges posed by the acceleration of aging population in Thailand. The majority of elders are likely to choose Thai massage as alternative medical therapy to maintain health (Paichit Warachit et al, 2012). Most of them are also influenced by 4Ps marketing strategy -- Product, Price, Place and Promotion (Siriwan Serirath et al, 2009), when choosing Thai massage service. As for the elders who participate in Yoga recreation activity, the factors that lead to their participation are social factor, health factor, economic factor, environmental factor, psychological factor and cultural factor (Phyathai Hospital, 2013). The aforementioned data indicates that elders need to participate in health promoting activities, both Thai massage and Yoga practice. As a result, public sector or agency relating to elderly health promotion work should develop 3 levels of continuous social management. The first level is to manage through mechanism of public sector which provides health promotion. The public sector must act to allocate budget for health promoting activities. The second level is to manage through municipal administration system. As the municipal administrations and the people in their responsible areas are particularly close, so they can easily reach out to the elders in their areas. The municipal administration should hold health promoting activities for elders on regular basis and make the elderly health promotion a main strategy for municipal health promotion scheme (Bureau of Policy and

Strategy, Ministry of Public Health, 2011).The last level is to manage sustainable health promotion with community-based approach or regard elderly population as a center of continual health promotion activities. The process in this level could be executed by the authority of local leaders as well as activities held by local schools and local religious places. Since the religious places are the heart of communities, the people would be willing to unite and substantially work together to promote health. (Nakhon Si Thammarat Rajabhat University, 2013)

In order to execute the aforementioned social management, the important agencies responsible for promoting wellness of Thai people should proceed to continually hold health promotion activities, especially Thai massage and Yoga practice for elders, starting from the management through mechanism of public sectors which provide health promotion, then carry on to the management through municipal administration system and the final stage is the community-based management which will lead to sustainable health promotion for elders in Thailand.

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Prediction Of Market Situation For Studying Elder Consumers' Health Care Product Usage Behaviors In Medical Clinics In Thailand

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Abstract

This research aims to study older consumers' health care product and service usage behavior in medical clinics in Thailand, applying prediction of market situation as an analysis frame. The goals of this research are 1) Studying older consumers' health care product and service usage behavior in medical clinics in Thailand and 2) Forecasting market situation in order to develop proper marketing strategies for elderly medical clinics in Thailand. The methodology of this research is applying quantitative research methods to forecast marketing situation, using a sampling group, which is the older population living in urban areas of Thailand, including Bangkok and metropolitan area and urban areas in provinces with high rate of older population, the total number of the samples is 400 (Alpha 0.05); descriptive statistics, Pearson product – moment correlation coefficient inferential statistics as well as Pearson's chi squared test statistical procedures are also applied in this research.

The results showed that older consumers in medical clinics in Thailand decide to purchase or consume the products by the principles of market situation prediction that establishes cause-effect relationship. Older consumers' purchase decision is chiefly influenced by health factors and logical factors, other less influential factors are emotional factors and social factors while economy factors have the least influence. If the entrepreneurs plan to maintain or expand elderly health care product markets, they should develop proper marketing strategies, emphasizing “Product” and “Place” factors.

Keywords: Market situation, elder consumer, health care product

Introduction

Thailand is currently facing demographic change, leading to the country becoming aging society. The 2012 Survey of Older Persons in Thailand conducted by National Statistical Office of Thailand showed that older people are accounting for approximately 12% of the country's population (National Statistical Office of Thailand, 2013). National Economic and Social Development Board of Thailand has also projected the median age of population in Thailand in 2000 – 2030 and the projection indicated that in 20 years, the median age of population in Thailand will be reaching 40, which means half of the population is age 40 and over, while the other half is under age 40. The aforementioned situation showed that the number of older persons in Thailand is constantly accelerating, as a result of technology advancement, education development and health care system improvement. (National Economic and Social Development Board of Thailand, 2013)

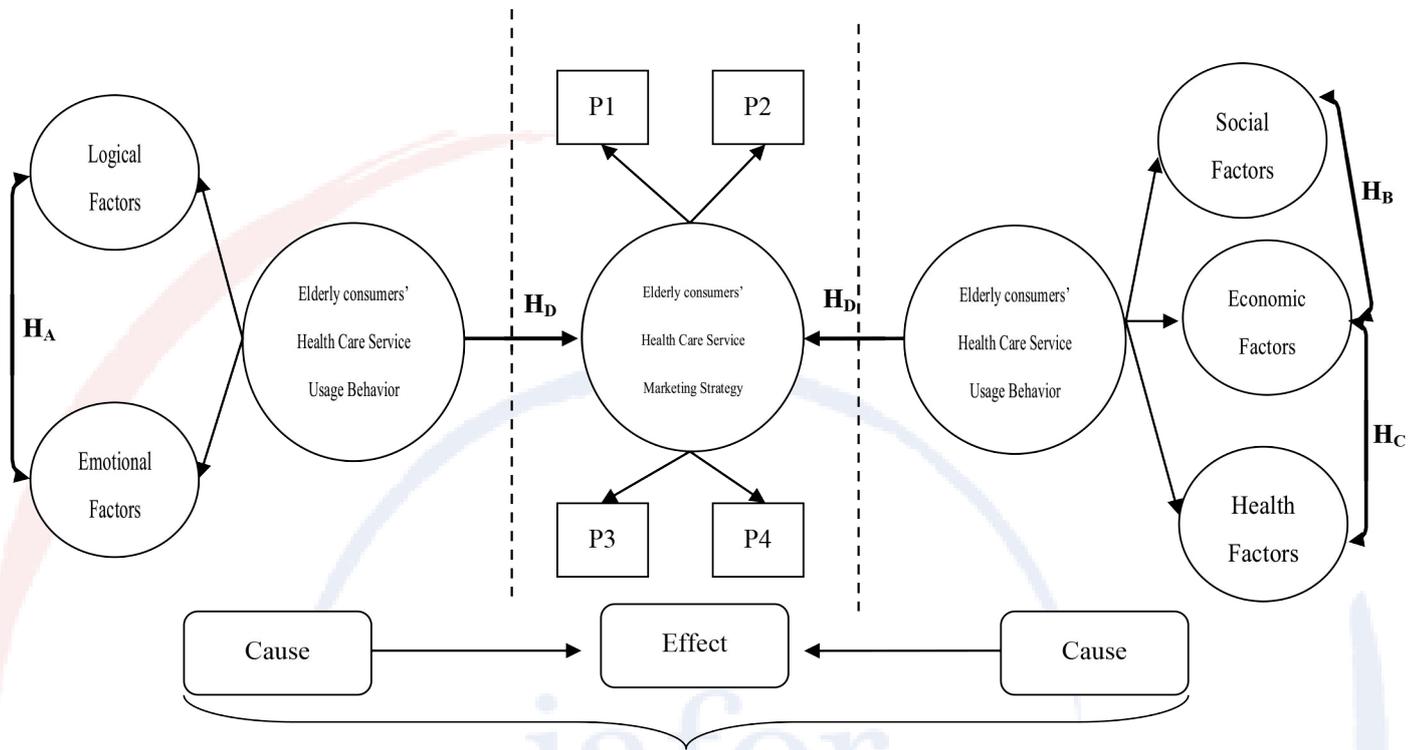
The aging demographic trend has various impacts on Thailand's social dimensions, for examples, impact on productivity of labor intensive industry sectors, impact on the government's social pensions management, impact on elderly citizen's wellness management as well as impact on measures, schemes and plans which could influence marketing strategies of business sectors (Suvinee Wivatvanit, 2012). However, the country's social management has been compelled to prepare for such situation for over a decade, and the government and private sectors have readily formulated measures to address the challenges posed by aging population in Thailand. The preparation is based on 3 strategies: well-being of older persons, requirements of the government and private resources for services that meet the needs of the older persons, and requirements of communities' care system for elderly. (Teerapol Toupunpanont, 2013)

Today, elderly health care trends are being applied as a measure for improving the quality of life of older persons and various healthy activities are being promoted to improve physical and mental wellness of the elderly. Since more and more older persons are facing health problems, due to lack of exercise, tension caused by society, family and economy problems as well as food safety problems, the government therefore need to encourage people to promote health and prevent illnesses by consuming healthy foods, use safe, healthy, chemical-free and environmental-friendly products, as well as exercise on regular basis. The aim is to help aging people maintain a good quality of life, for the purpose that the government would not need to place a massive budget to care for the older population. Medical clinics are considered

to be one of the instruments for issuing health advices and distributing health care products for the elderly, apart from the health products available in department stores and supermarkets. This will encourage the older consumers to have more confident in clinics' health advice services. (Danai Theewanda, and Malulee Seanjai, 2013)

Market situation of older consumers' health care product and service usage behavior in medical clinics in Thailand has become a major issue for entrepreneurs, especially those in medical clinic business. For the reason that elderly products and various aids to daily living for the elderly as well as elderly health care products like herbal supplements and vitamin supplements will be in high demand in the future (Apisit Chattananont, 2013). Thus, the study concerning main factors affecting the market situation analysis, also known as market situation prediction, will become a primary indicator for developing proper marketing strategies for the increasing number of older consumers who tends to purchase health care products through medical clinics' service. The entrepreneurs may apply this data to develop proper marketing strategies, fulfilling the product and service demand of older population in Thailand.

Considering aforementioned scenario, our research team is thus interested in studying the older consumers' health care product and service usage behaviors in medical clinics in Thailand. We planned to apply the principles of market situation prediction as our analysis frame, aiming to achieve 2 main goals: 1) Studying the older consumers' health care product and service usage behaviors in medical clinics in Thailand. 2) Forecasting market situation in order to develop proper marketing strategies for elderly medical clinics in Thailand. The frame of our research is illustrated in Figure 1.



Prediction of Market Situation

Figure 1: Frame of the Research

Research Methodology

In this research, the research team applies quantitative research methods to analyze older consumers' health care product and service usage behaviors in medical clinics in Thailand, and then predicts the market situation using the sampling group. The sampling frame is the older population living in urban areas of Thailand, including Bangkok and metropolitan area and urban areas in the provinces with high rate of elderly population, namely capital district (Amphoe Mueang) of Chiang Mai Province, capital district of Khon Kaen Province, capital district of Surat Thani Province, and capital district of Phetchaburi Province. In analyzing sampling group, we apply the practices of probability sampling and stratified sampling (Thanin Silpjaru, 2007), using 400 samples (Alpha 0.05) (Taro Yamane, 1970; p.886 cited in Yuth Kaivarn, 2006; p. 105 – 106). The research tools includes questionnaire regarding older consumers' health care product and service usage behaviors in medical clinics and elderly products marketing strategies based on 4Ps – Product, Price, Place, Promotion (Siriwan Serirath et al., 2009).

Statistics applied in the research are descriptive statistics which includes frequency,

percentage and standard deviation and inferential statistics which includes Pearson product-moment correlation coefficient variables relationship test (Puangratana Taweeratana., 2000) for hypothesis test for relationships between variables namely logical factors and emotional factors, social factors and economy factors, health factors and economy factors as well as Pearson's chi squared test statistical procedures (Apinant Jantane, 2006; p. 90 – 92) for testing the influences of marketing strategies on older consumers' health care service usage behavior in medical clinics.

Conclusion

Part I, the characteristics of older consumers purchasing health care products in medical clinics are as following: The majority of the sampling group are female, with total number of 222 (55.50%); 198 are aged between 60 to 64 (49.50%); 207 are graduated with bachelor's degree (51.80%); 152 have been a government officer before their retirement (38.00%); 157 have monthly income of 10,001 – 20,000 THB (39.30%); 335 are married (83.80%); 387 are Buddhist (96.80%); 166 are vegetarian (41.50%); 220 consume healthy foods in order to maintain their physical wellness (55.00%); 291 are influenced by individual factors when making health care decision (72.80%).

Part II, Hypothesis testing for relationships between two variables, logical factors and emotional factors (H_A), (Tanyamas Woonsiri, 2011), see Figure 2.

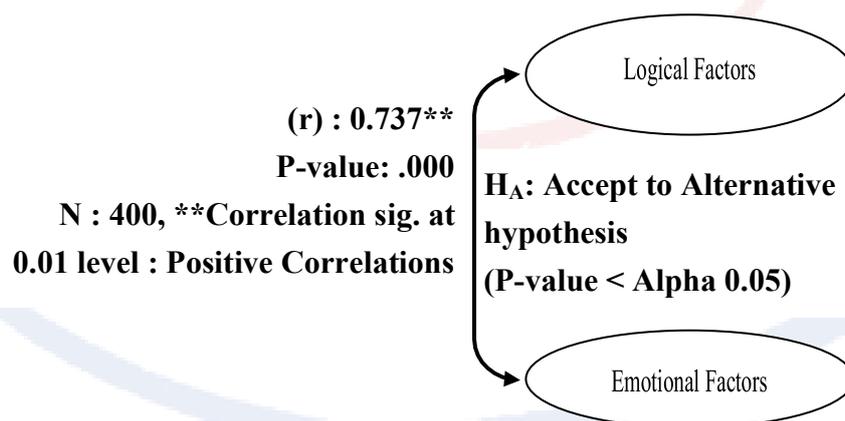


Figure 2: Result of Statistical Test for Relationships between Two Variables, Logical Factors and Emotional Factors.

Part III, Hypothesis testing for relationships between Two variables, social factors and economic factors (H_B), (Kown & Suh, 2004), see Figure 3.

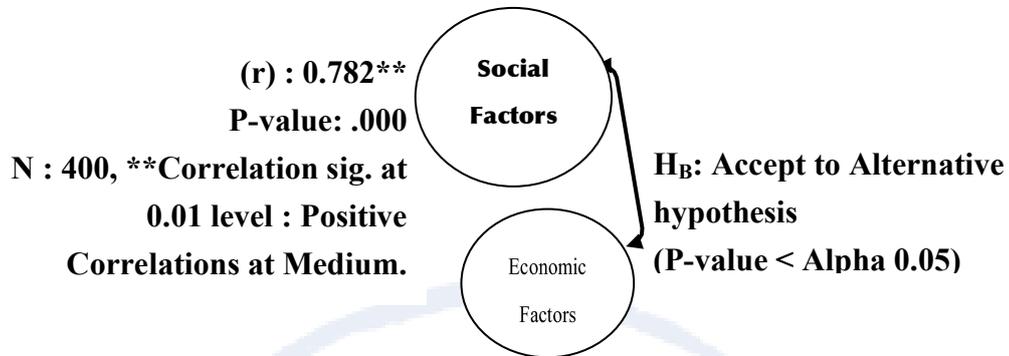


Figure 3: Result of Statistical Test for Relationships between Two Variables, Social Factors and Economic Factors.

Part IV, Hypothesis testing for relationships between two variables, health factors and economic factors (H_C), (Capps & Schmitz, 1991), see Figure 4.

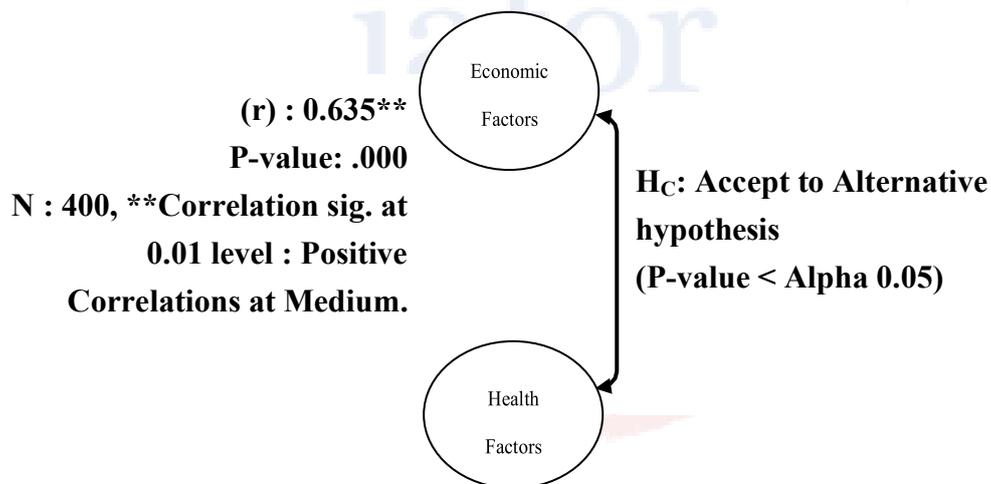


Figure 4: Result of Statistical Test for Relationships between Two Variables, Health Factors and Economic Factors.

Part V, Test for the influences of marketing strategies on older consumers' health care product and service usage behavior in medical clinics (H_D) (Somkiat Rungnirattisai, 2011), see Figure

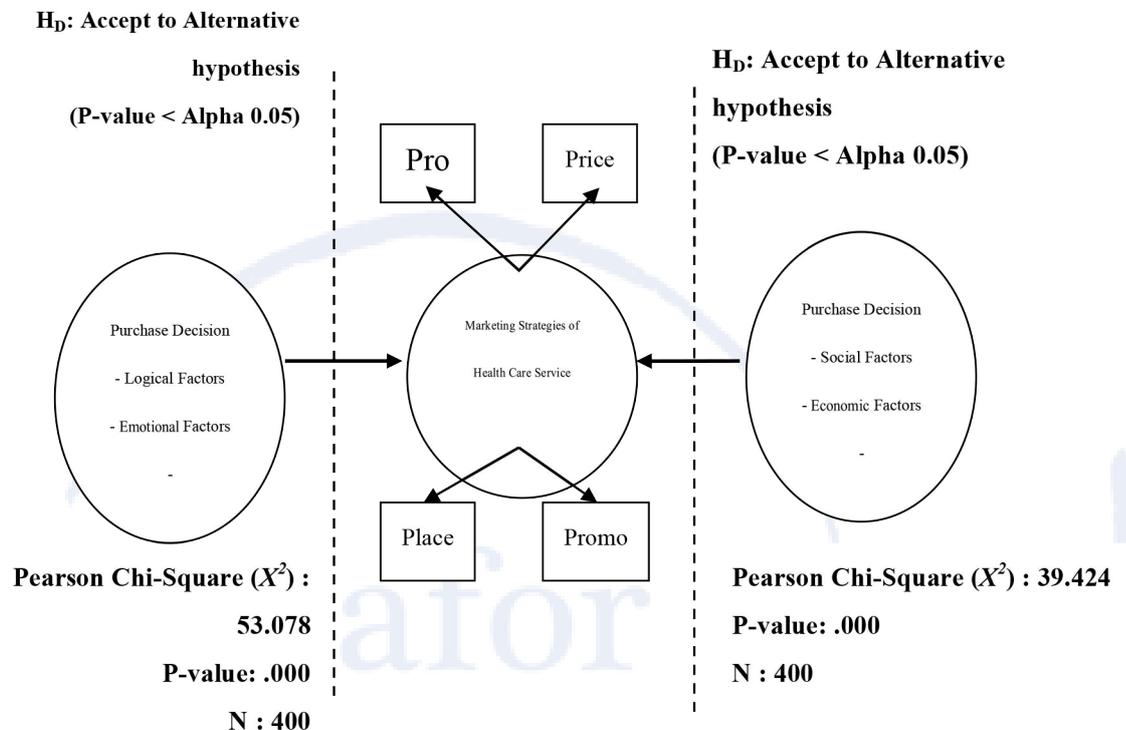


Figure 5: Result of the Statistical Test for the Influences of Marketing Strategies on Older Consumers' Health Care Product and Service Usage Behavior in Medical Clinics

Result and Discussion

The research of older consumers' health care service usage behaviors in medical clinics in Thailand concerns 5 kinds of product as following 1) Oral medication 2) Inhaled medication 3) Injection Medication 4) External medication e.g. cream, gel, ointment and 5) Suppository. Applying principles of market situation prediction, older consumers consider cause and effect before making purchase decision. The most common scenario is that the majority of older persons often have health problems; therefore they need to use services from medical clinics and purchase various health care products from the clinics in order to recover to health or alleviate illnesses. Hence, Thai elderly will purchase health care products only when their health are deteriorating or when they are suffer from personal health problems. Another scenario is that the consumers' friends or relatives persuade them to purchase health care products in medical clinics. When considering the factors that influence consumers' tendency to purchase health care products in medical clinics, the most important

factors turn out to be health factors and logical factors. Other less important factors are emotional factors and social factors, while the least important factors are economic factors. Therefore, if medical clinic entrepreneurs need to maintain or expand elderly health care products' market -- as the share of older population is unceasingly accelerating -- they need to develop marketing strategies that highlight "Product" factor, since effective products and fast medical services are the most important factors that influence older consumers' purchase decision. The factor of secondary importance is "Place". The distribution place must be clean and convenient, with sufficient space and good shelf displays that are managed to meet the physiological deficiencies of older consumers. "Price" and "Promotion", on the other hand, are not considered to be as important by older consumers when purchasing health care products in medical clinics. The reason is that the structure of health care product markets is rather close to the oligopoly market and the older consumers almost consider this kind of products to be a necessity-good; therefore, even when the price is high and no promotion is being offered, the consumers still regard it is necessary to acquire this kind of products.

Recommendation

The research showed that older consumers will start using services of medical clinics only when they have health problems, which means the decision-making factors of the Thai elderly are health factors and logical factors. Thus, all concerned parties, especially entrepreneurs, should focus on "Product" when they are developing their marketing strategies. The "Product" management needs to concentrate on manufacturing products that are effective and able to produce desired effect as well as providing fast medical service. Another important factor is "Place", the distribution place must be clean and convenient, with sufficient space and good shelf displays that are managed to meet the physiological deficiencies of older consumers.

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Prediction of Market Situation for Studying Elder Consumers' Health Care Product Usage Behaviors in Medical Clinics in Thailand

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The Asian Conference on Society, Education and Technology 2013

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Abstract

This research aims to study older consumers' health care product and service usage behavior in medical clinics in Thailand, applying prediction of market situation as an analysis frame. The goals of this research are 1) Studying older consumers' health care product and service usage behavior in medical clinics in Thailand and 2) Forecasting market situation in order to develop proper marketing strategies for elderly medical clinics in Thailand. The methodology of this research is applying quantitative research methods to forecast marketing situation, using a sampling group, which is the older population living in urban areas of Thailand, including Bangkok and metropolitan area and urban areas in provinces with high rate of older population, the total number of the samples is 400 (Alpha 0.05); descriptive statistics, Pearson product - moment correlation coefficient inferential statistics as well as Pearson's chi squared test statistical procedures are also applied in this research. The results showed that older consumers in medical clinics in Thailand decide to purchase or consume the products by the principles of market situation prediction that establishes cause-effect relationship. Older consumers' purchase decision is chiefly influenced by health factors and logical factors, other less influential factors are emotional factors and social factors while economy factors have the least influence. If the entrepreneurs plan to maintain or expand elderly health care product markets, they should develop proper marketing strategies, emphasizing "Product" and "Place" factors.

Keywords: Market situation, elder consumer, health care product

Focusing on the Literal and Metaphorical Patterns of Prepositions: Corpus and its Applications

English prepositional phrases are among the most easily confused patterns for learners of English. In this paper, we investigate eleven English prepositions in the fixed frame [PREP *the* NOUN *of*] retrieved from the British National Corpus. Then, we analyzed the NOUNs in this frame by first mapping to their senses and then categorizing them into literal and metaphorical meanings.

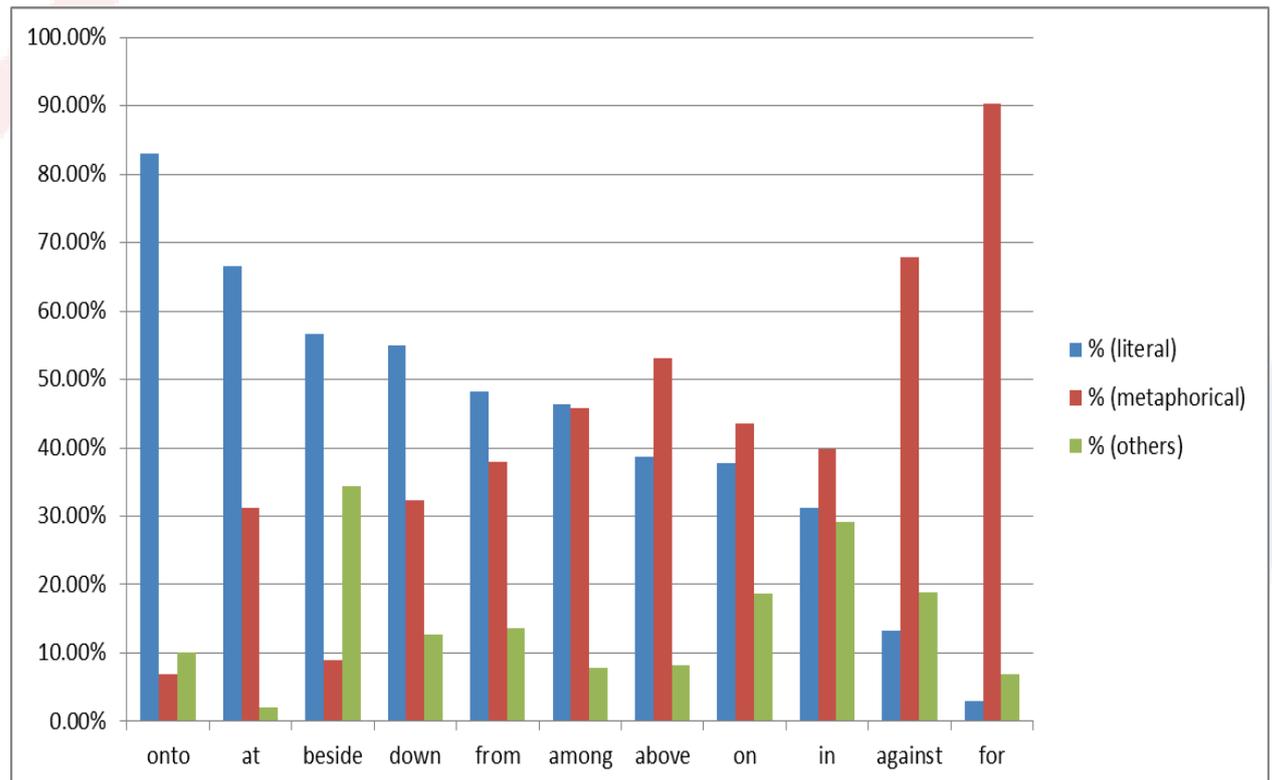


Figure 1: Literal and Metaphorical Uses of Prepositions

The meaning of [PREP *the* NOUN *of*] form a continuum in Figure 1: More literal meanings were found on the left than on the right. ('Others' are such as proper nouns or NOUNs with a mild meaning such as *use*, *meaning*, which cannot be categorized.) When the PREPs are *onto*, *at*, *beside*, or *down*, more than half of the instances convey a literal meaning (e.g., ***onto*** *the shoulder of*, ***at*** *the door of*). Conversely, when the PREPs are *for*, *against*, or *above*, more than half of the instances convey a metaphorical meaning (e.g., ***for*** *the improvement of*, ***against*** *the history of*).

Since metaphorical meanings could be 'time' (*in the period of*) or 'non-time' (*against the refusal of*), we further analyzed the metaphorical uses into two groups.

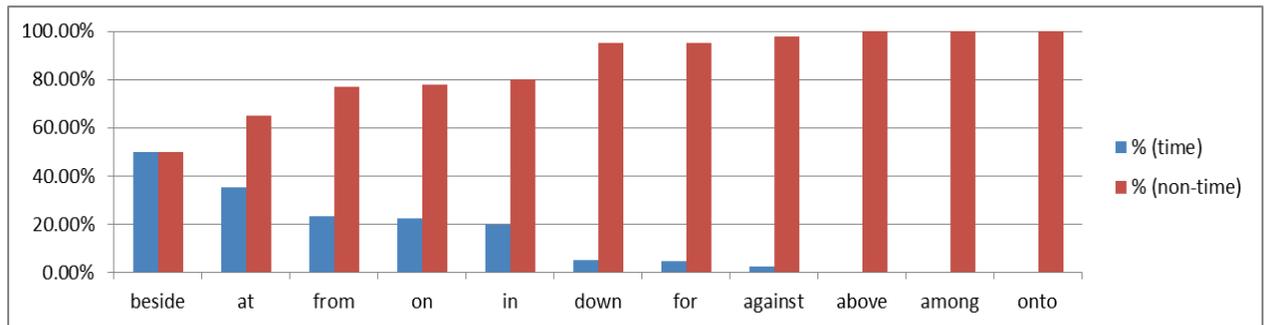


Figure 2: Time and Non-Time Uses of Metaphorical Meanings

While contrasting both figures, several interesting observations could be made: *Beside* has a majority of literal meanings (Figure 1) while its metaphorical meanings are half ‘time’ and half ‘non-time’. *Onto* has the higher percentage of literal meaning yet its metaphorical meaning shows no instance of time-related use. *Among* and *above* have high metaphorical uses but these metaphorical instances are also non-time related.

As shown above, we could see that prepositions have many facets of meanings. The teaching of prepositions can also be multi-faceted by considering literal and metaphorical uses and authentic exemplification using corpus.

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Appendix:

A. Literal:

1. *The kinetic treatment of crystallization from the melt is based on the radial growth of a front through space and can be likened to someone scattering a handful of gravel **onto the surface of** a pond. (HRG 1084)*
2. *Only some wreckage was washed up, **off the coast of** Alaska. (G3P 1389)*

B. Metaphorical:

1. *And today's Government privatisation announcement writes another page **into the history of** Belfast International Airport. (HJ4 3303)*
2. *A horse that has been hurt by people a number of times, especially **in the absence of** any reward, will learn to expect only ill of people and will always be anxious in relation to them. (ADF 771)*

C. Others:

1. *All sectors, **with the exception of** construction, are forecasting improvements in sales, order books and exports, with optimists outnumbering pessimists by a significant margin. (AJ2 168)*
2. *Australia has been isolated **from the rest of** the world for a long time and its flora and fauna are unique having evolved on their own without competition from species elsewhere. (AM2 473)*

D. Metaphorical (Time):

1. *Horoscopic astrology, according to which the positions of the planets **at the time of** birth determines the fate of the individual, did not develop until much later. (ASF 180)*

E. Metaphorical (Non-time):

1. *Traditionally, controversy has centred **around the question of** whether local authorities should adopt best commercial practice, ... (GVU 1414)*
2. *Darwin is important in any history of the environmental sciences because his theory focused attention **onto the problem of** how species become adapted to their environment. (G0H 618)*

Synthesis of Legal Provisions and a Financial Feasibility Study on the Investment Project of Serviced Apartment Business around the Court in Amphur Hua Hin, Prachuap Khiri Khan Province

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Abstract

The purpose of this research was to study the feasibility of apartment business investment around the court located in Amphur Hua Hin, Prachuap Khiri Khan Province, Thailand. A synthesis of legal provisions of Ministerial Regulation on the Building Control Act (No.9) B.E. 2535 (1992) was an approach for the research. The area suitable for investment was in Article 4 under this Ministerial Regulation which stipulates the building construction should not exceed 23 meters high. It was found that the interested investors could build a house or building under such conditions. The investment analysis showed that an area of 4 acres with 4-story building containing 49 rooms and an area of 4 acres with 4-story building containing 77 rooms was very attractive. For the financial ratios analysis, Internal Rate of Return (IRR) was at 15% which yielded more than other forms of investment such as bank, gold, stocks, and bond. Net Present Value (NPV) was greater than 0 at 481,018.06 baht. Other financial ratios included Profitability Index (PI) at 1.01 and return from investing such as ROA, ROE, GPM, and OPM was at 7%, 7%, 80%, and 72%, respectively.

Keywords: Synthesis of legal provisions, Service business, Feasibility study

Introduction

The real-estate business in Thailand plays an important role in developing nation's economy and society since the growth of this business can positively affect the overall economy in various aspects: labor, financial institution, and related businesses. Real estate is considered the leading sector that contributes to both production and investment of the country. It functions as consumer for other productions, at the same time (Thernald et al, 2000). Besides, the public sector has focused on real estate by formulating the policy and other measures to support the industry. The demand for housing is continuously expanding each year which means an investment in housing business is very appealing. An investment in real estate comes in many forms: housing, commercial building, townhouse, and condominium. Recently, many operator has enter the real-estate business has vastly occurred, but the rapidly-expanding business may cause a risk of increasing competitors which reduces market share. Therefore, the real estate operators have had to conduct the feasibility study by looking at costs, revenue, return on investment, and environment. Some developers conduct the market research to understand what the market wants and to assess purchasing power in the future, which is consistent with the research by Niphon Charoensri (2008). Niphon Charoensri (2008) explored the feasibility study on investment in apartment in Sukhumvit 1 and suggested that before an investment takes place, the operators should take a look at Return on Investment (ROI). In this case, the operator considered Internal Rate of Return (IRR), Benefit-Cost ratio, and Payback Period. All of these financial instruments should indicate the positive sign in order to ensure the interested party to make an investment decision. Since the risk of doing business is at present highly risky, and a large amount of initial investment in real estate is needed, the operators should study the feasibility of the project before making an investment. Moreover, some operators who have already invested in the project conducted the customer satisfaction in order to obtain the information for product and service improvement. Thus, there has been much research with regard to the customer satisfaction locally and internationally. Wanwalai Asawaeksuthon (2007) examined the level of foreign customer satisfaction in staying at premium serviced-apartment in Sathorn. The results showed that the level of overall satisfaction was very good thanks to its service and security; still, prices should be reduced. Thawatchai Thaweethawornsawat (2006) investigated attitude and trends in consumer behavior in Bangkok toward townhouse by the Plus Property Partner Company. The results indicated that 404 interested visitors had a positive attitude toward products, prices, and location. Most of the respondents put their attention to the location which corresponded to the research conducted by John D Benjamin & G Stacy Sirmans. The results demonstrated that most foreigners emphasized on location as a main factor for choosing an apartment, followed by prices and service, respectively. Juliann Walsh (1991) explained the importance of facilities with prices and occupancy rate and went on to say that before the construction, the operator should send out the questionnaire to the target market to learn what kind of facilities they wanted in order to provide the facilities that met customers' wants. Juliann Walsh (1991) further described that

normally customers would choose an apartment by taking location, plan, and value of the project into consideration. Although the nice facilities can attract a huge number of customers, and selling prices could be high with the fact that they wanted to feel at home, an investment for serviced apartment development has currently received much attention from urbanized people. Nonetheless, this business contains some limitation: location. The limitation in location includes the limited areas or the law.

The construction for real estate around the court, particularly serviced apartment in Thailand is considered a very sensitive issue since Thai society is much royalty to the monarchy. If the project is worth investment, then the interested people should strictly follow the Law. In this case, considering only financial indicators is not enough. The investors should take the background, local tradition and culture into account, which is divided into custom and traditional dimensions, including an analysis from regulations on the construction around the court.

As described previously, the real estate operators begin to put an emphasis on market research and the feasibility study. For the investment analysis, the operators would mainly evaluate the experience of management team. In addition to the current economic situation, consumer behavior nowadays is more complex; as a result, the market research technique is required to study the feasibility of the real-estate business. This phenomenon interests the researcher to synthesize the regulations and study the feasibility of serviced apartment investment built around the court located in Hua Hin, Prachuapkhirikhun province. The aims of the paper are 1) to analyze the background and local tradition and culture as well as analyzing the Building Construction Act of serviced apartment near the court and 2) to analyze the possibility in management with the apartment business strategies.

Methodology

The questionnaire was used to collect the data by counting observation and showing cards, and the paper relies heavily on primary data. To meet the objectives of this research, statistical computer program will be adopted to analyze the data as follows: Descriptive statistics (Frequency Table, Percentage, Mean) Chi-Square is used for testing the hypothesis. The sample is a group of tourists and people both foreign and Thai who live in Hua Hin, Prachuabkhirikhun province. Moreover, counting observation is embraced for collecting data from the apartments located in the interested areas in order to be brought in to formulate the strategies. There are five steps of conducting the research as the following:

Step 1: Analyzing the local background, traditional, cultural dimensions, and the Building Construction Act related to serviced apartment near the court situated in Hua Hin

Step 2: Conducting market research to understand consumer demand aimed at a group of tourist and people both Thai and foreign who live in Hua Hin and who is

likely to stay at an apartment on a daily or monthly basis. 400 questionnaires were distributed to the target respondents in Hua Hin.

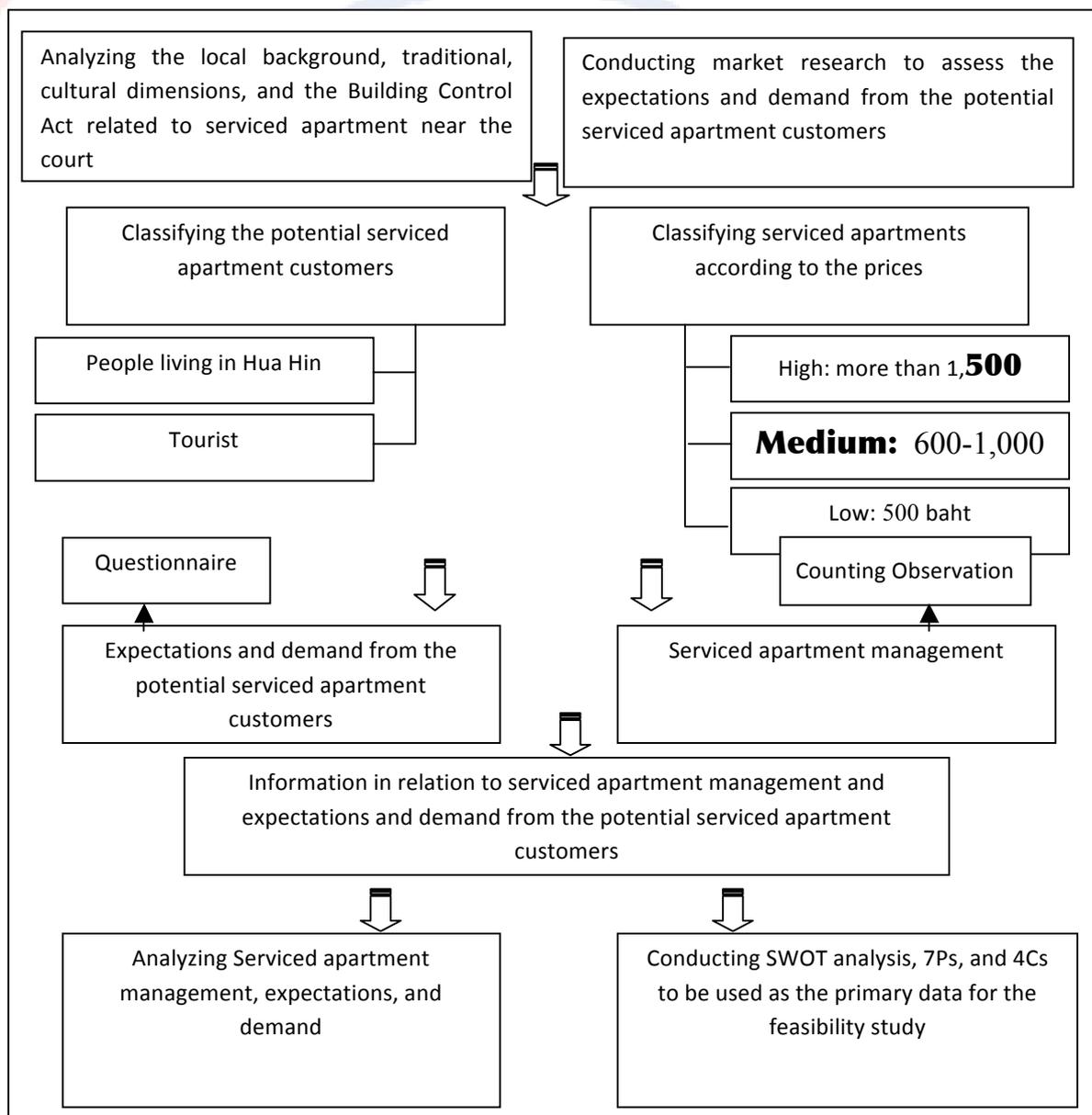
Step 3: Conducting the feasibility study of serviced apartment project

Step 4: Conducting financial analysis: Balance sheet, Income statement, Cash flow statement, and Payback Period

Step 5: Performing the calculation of Return on Investment ratio

The following figure is the conceptual framework of research process.

Figure 1: Conceptual Framework



The figure 1 indicates the process of market research that the researchers have embraced as the first step to obtain the required information for the feasibility study. The researchers also examined the expectations and demand from the potential serviced apartment customers by means of questionnaire, along with an assessment of serviced apartment management from real experience in staying at the 15 serviced apartments. Apart from analyzing serviced apartment management, expectations, and demand from the potential serviced apartment customers, the research also uses SWOT analysis, 7Ps, and 4Cs in analyzing serviced apartment business to be used as the primary data for the feasibility study.

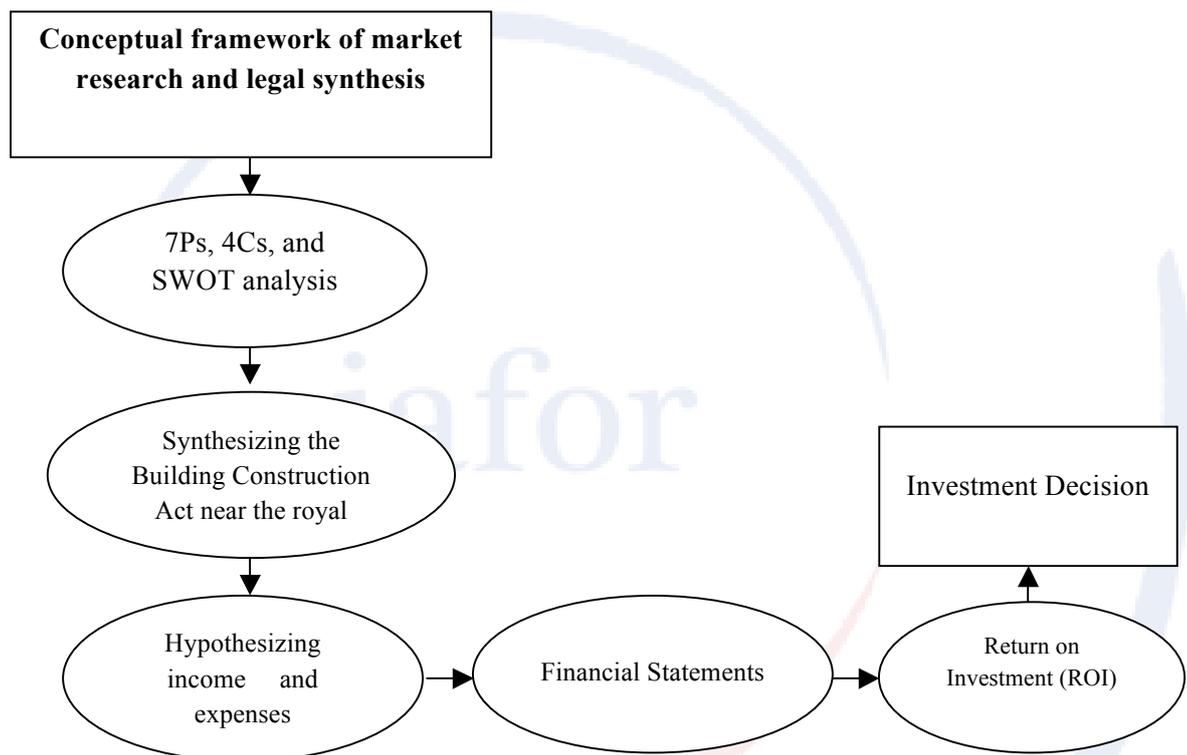


Figure 2 Linkage of conceptual framework

Conclusion and Discussion

In the traditional and cultural dimension analysis, it is found that local people put greatly the importance on the tradition and culture. In other words, whatever actions go against belief of and faith in what they have, those actions would be blamed. People who live locally ruin the belief and faith that local people have; they would be terminated from the society in which they live. Therefore, every action that happens should take local culture into consideration. As well, any construction should consider social and cultural factors. When local people object to the building, it would affect the investment. Those interested in building construction around the court should carefully study all related dimensions, especially society. Because the construction should follow the local law, it is necessary to study the internal factors that will have

an impact on the investment. Such internal factors contain society and local culture. Without internal factor consideration, an investment would be meaningless.

The following issues are found in regulations on the construction near the court:

1. The Ministerial Regulations stipulate which areas are allowed or not allowed for commercial building or housing constructions depending on the physical characteristics that will be used for the construction and the pros and cons that will affect the court in the future.
2. The allowed areas for construction are divided into 5 groups which connect to the court area. From the researcher point of view based on analysis, the areas suitable for an investment in commercial building or housing construction are the fourth area which stipulates that the building should not exceed 23 meters in height, that .

For analysis of management for housing estate, marketing information is found to play an important role in helping strategic planning and management as the following. Products are needed to be equipped with the facilities, but additional charges are required (700 baht / month for air-conditioner + TV). The rooms should be beautifully designed and look modern, and the area available for utilization. In terms of facilities, respondents would like to have air-conditioner, bed, wardrobe, dressing table, desk, TV, refrigerator, etc. in a room. Also, the respondents prefer to have additional facilities like security keycard and elevator for their safety and convenience. In terms of prices, the respondents also place the importance on daily/monthly rental rate, followed by utility rate such as water, electricity, telephone. The deposit on the room should not exceed 20,000 baht. For monthly rental, the charges should be 1,000 – 1,500 baht. For place, most respondents prefer to have 25-30 square meter living room area, while location should have an easy access such as buses. For facilities within the apartment, the majority of respondents would like to have the swimming pool, dining room, spa, convenience store, etc. For promotion, the respondents focus on advertisement via media like television, room brochures, flyers, and attractive sales promotion. Sample room is another incentive for customers to choose to stay. For apartment operation, most respondents prefer to have fast and convenient process; for example, reservation can be easily made through the Internet, 24-hour staff is provided as well as 24-hour security guard. Properties of customer are well kept. For physical aspect, most respondents put their importance on environment and building. The building should be durable and its surrounding should be quiet. The results from analysis can be summarized as shown in the table 1. The hypotheses are as follows:

H_0 : There is no relationship between personal factors of customer and 7Ps.

H_1 : There is no relationship between personal factors of customer and 7Ps.

Table 1: Result from an analysis of no relationship between personal factors of customer and 7Ps.

Crosstab	Product	Price	Place	Promotion	People	Process	Physical
Sex	Invalid sig:0.7750	Valid sig:0.029	Invalid sig:0.388	Valid sig:0.010	Invalid sig:0.073	Valid sig:0.002	Valid sig:0.000
Age	Invalid sig:0.111	Valid sig:0.021	Invalid sig:0.147	Invalid sig:0.324	Valid sig:0.017	Invalid sig:0.878	Valid sig:0.009
Education	Valid sig:0.000	Valid sig:0.367	Valid sig:0.001	Invalid sig:0.178	Valid sig:0.000	Invalid sig:0.458	Invalid sig:0.183
Occupation	Valid sig:0.047	Valid sig:0.08	Valid sig:0.371	Valid sig:0.027	Valid sig:0.003	Invalid sig:0.197	Invalid sig:0.087
Status	Valid sig:0.045	Valid sig:0.046	Invalid sig:0.492	Invalid sig:0.549	Invalid sig:0.678	Invalid sig:0.622	Valid sig:0.021
#Members	Invalid sig:0.378	Valid sig:0.025	Invalid sig:0.438	Valid sig:0.035	Invalid sig:0.233	Valid sig:0.039	Valid sig:0.001
Monthly income	Valid sig:0.018	Invalid sig:0.950	Valid sig:0.036	Invalid sig:0.150	Valid sig:0.026	Invalid sig:0.876	Valid sig:0.048

Criteria: value of Crosstab Chi-square derived from Crosstab Chi-square standard or Sig < Alpha at 0.05 accept H_1 (Alternative hypothesis) reject H_0 (Null hypothesis)

The synthesis of the legal provisions of Ministerial Regulation on the Building Control Act near the court in Hua Hin as appeared in the table 1 above can be summarized:

1. A one-story building which is not more than 6 meters high and which the area is limited to 75 square meters can be built under the condition that it is 100 meters away from the court. Each building should be separately located greater than 4 meters, and away from other premises not less than 2 meters. Space around the building should be greater than 75% of all authorized area and 20 meters away from the sea or greater than 12 meters away from Khao Tao dam.
2. In the area of the coastline of the district of Hua Hin and Nong Kae, 50 meters along the coastal district of Nong Kae and Hua Hin, starting from Municipality of Hua Hin from North to South except the area in No. 1 and Wang Klai Kang Won Palace, one-story building which is not more than 6 meters high, which the area is limited to 75 square meters, which each building should be

separately located greater than 4 meters, which away from other premises not less than 2 meters, which space around the building should be greater than 75% of all authorized area and 20 meters away from the sea or greater than 12 meters away from Khao Tao dam can be built.

3. The area according to No. 2 for 150 meters away, one-story building which is not more than 6 meters high and which is away from other premises not less than 5 meters can be built.
4. In the area measured at the third area along a length of 500 meters, the building specified in No.1-No.3 can be built.
5. In the area in No. 1 along a length of 400 meters except No.2 and No.3, a building which is less than 12 high and which contains the area in every floor in the same building or many building but not greater than 100 square meters can be built and calculated in the form of financial ratio as depicted in the table 2 which is divided into 3 groups:
 - 1) An area of 4 acres with 4-story building contains 35 rooms.
 - 2) An area of 4 acres with 4-story building contains 49 rooms.
 - 3) An area of 4 acres with 4-story building contains 77 rooms.

(Excluding an analysis of investment sensitivity)

Table 2: Financial Ratios

Financial Ratios	35 rooms	49 rooms	77 rooms
IRR	14%	15%	14%
NPV	-2,015,301.00	481,018.06	-6,055,047.49
PI	0.97	1.01	0.92
GPM	81%	80%	84%
OPM	73%	72%	70%
NPM	45%	44%	42%
BEP	2,740,601.29	2,787,145.80	6,008,140.74
D/E Ratio	0.23	0.23	0.23
ROE	7%	7%	7%
ROA	7%	7%	7%
PB	Year 8	Year 7	Year 8
Investment decision	No	No	No

Suggestions

The results indicate that the serviced apartment operators should not price the room rate too high. In case of the daily rental, the prices should not exceed 1,500 baht, and the monthly not greater than 15, 000 baht. Also, the monthly rental apartment operators should classify the prices into 2 groups: prices suitable for workers and prices suitable for students. Furthermore, the operators should differentiate their sales promotion from the competitors by providing tour guide service, for example.

For future study, the current research is the field study by collecting the data from 15 serviced apartments which do not represent all kinds of apartment. Therefore, the future study should include all types of apartment such as hotels, resorts, guesthouses, or housing to have the data that can be used for making a comparison with customer demand as a foundation for the feasibility study.

Acknowledgement

This research could be achieved thanks to the cooperation from the tourists and the people including the surveyed apartments in Hua Hin, Prachuap Khiri Khan Province. The information obtained is very beneficial for this research. The researcher would like to thank many professors for their contributions as references in the paper, which allow me to have the right knowledge to be brought in the research.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is surrounded by several large, overlapping, curved lines in shades of red and blue, creating a circular, abstract background.

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*Application of Web-Related Technologies as a Way to Provide Students with
Additional Incentives for Learning a Foreign Language*

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Abstract

In the era of information society teachers and learners are faced with the challenges that blended learning brings. There comes the necessity to use new forms and technologies to change the traditional approach to teaching. Application of Web-related technologies opens up new opportunities in arranging educational environment. Web 2.0 provides resources and tools that make learning process social, interactive and collaborative as they offer a wide variety of information communication technologies (ICT) to connect students in education and help move from instructor-centered methods of teaching to more contextual learning and problem-solving techniques. As students always expect activities and content to be relevant to the real world it gives them an additional incentive to study. Moreover, Web-related technologies contribute to the individualisation of education, as they allow students to study at their own pace, at convenient time, in a suitable place. As a result, students are more motivated and encouraged to study. LMS educational products combined with face-to-face teachers –students interaction create a flexible pattern of learning through different formats. Live communication also plays an essential role in education, as gives rise to emotions, increases motivation, improves communicative culture, promotes personal and professional growth.

1. Introduction

Application of information technology in many spheres of human activity including education is a distinctive feature of the development of the modern society. . E-learning is considered to be the third learning system that makes use of various electronic technologies, forms and components as its primary means of learning and teaching (Snyder, 1998; Rosenberg, 2001; Swan, Bowman & Holmes, 2003) [8]. Both educators and learners have to choose from the variety of forms when being in a new educational environment. Blended learning as an integral part of e-learning exploits various technologies (TV, the internet, computers, software products for education etc), various components (e-books and dictionaries, e-libraries etc), various formats (e-learning courses and programmes, virtual learning centers, online programmes, virtual universities). Many k-12 and higher education institutions, firms and corporations have incorporated virtual learning environments into their traditional teaching and training mechanisms. Speaking about graduates of institutions of higher education we mean not just a professional in a particular area, but a cultural, educated, creative person who is not only able to use data and information and communication technologies (ICT) in his or her work, but also willing to take advantages of them in maintaining and developing his own intellectual and creative potential.

In order to reach this aim of higher education it is necessary to create conditions and build the educational environment in the way that will provide the required level of training of both teachers and learners. Moreover, it is of equal importance to manage the educational processes. The process of successful implementation technologies into teaching process requires special skills, motivation, technical availability and expertise. The practice shows that both teachers and learners are faced with the variety of problems both of technical and psychological nature. The main role of a teacher is to arrange educational environment, provide students with necessary materials, support and encourage them. One possible way to do it is to combine online and face-to-face teaching. New forms of asynchronous education require new approaches to teacher-student interaction. The education has becoming more individualized and the learners are more autonomous. The role of the teacher turn out to be more complicated: he/she takes the responsibility to create, develop, incorporate, coordinate, consult and share expertise with the learners.

The most important advantages that blended learning as a part of e-learning provides can be summarized as the following:

- increased transparency, availability and flexibility of education;
- individual approach to teaching and learning based on quick feedback, autonomy of the learners, variety and collaboration;
- interactive communication arranged with the help of variety of new forms, components and formats (hyperlinks, podcasts, video, on-line surveys, e-classes, e-libraries etc.);
- effective processing, storage and presentation of information;
- psychological development of learners (divergent thinking, creativity, information culture, problem solving skills, motivation etc);
- better social cohesion of different layers and cultures of society.

Global integration has led to the expansion of international contacts in all spheres of human life, including education. An increasing number of students prefer to study at a foreign university nowadays. Some choose short-time programs, while others

prefer bachelor or master programs or even getting PhD abroad. But not everyone can integrate both academically and socially successfully. In comparison with domestic students, international learners need to pay additional attention and effort to social integration, as their family, friends from their home country are mostly not within an easy reach. Social networks such as Facebook, Twitter provide opportunities for meeting new people, making friends, finding and sharing necessary information, getting acquainted with lifestyle and traditions of other nationalities, as well as keeping in touch with family and childhood friends, which, as a result, lead to an increase in motivation and satisfaction with academic environment.

2. Application of information communication technologies (ICT) to education

In 2003 the American society for training and development announced blended learning one of the ten top trends in the knowledge delivery industry. Almost ten years later the term “blended learning” is frequently used in education-related fields. Blended learning is the term used to describe learning or training events or activities where e-learning, in its various forms, is combined with more traditional forms of training such as "class room" training [6]. Another definition of blended learning is "any time a student learns at least in part at a supervised brick-and-mortar location away from home and at least in part through online delivery with some element of student control over time, place, path, and/or pace." [7]. In reviewing the literature, many suggest that blended courses emerge “where between 30 to 79 percent of the instruction is delivered online”. But online teaching is a complement to on-campus teaching and not a replacement [9].

Researchers offer different models of blended learning and different forms (Nagel; Clark) [2]. Before using the components of blended learning it is important to consider several factors such as target audience, educators themselves, time and money factors, technical opportunities, strategic goals [6]. The role of the teacher in this regard turns out to be indispensable. The main characteristics of a modern educator are deep knowledge of the subject, scholarship, curiosity, pedagogical skills, communicative culture, willingness and ability to implement into the learning process methods and technologies providing constant development of students, encouraging the growth of their creativity and initiative. The ability to analyze their own teaching activities is of high priority as well, as it helps to correct, improve and match them to modern requirements. Moreover, it allows to identify teachers’ own strengths, weaknesses and opportunities and, as a result, to create a strategy to improve the level of professional work and to contribute to the development of the personal qualities of the teacher.

The most favorable condition for professional and personal growth is the combination of various activities. Only those teachers who constantly improve their work and develop their skills will be able to provide the required level of training. In real every day teaching and learning practices that both teachers and learners are faced with the challenges both of technical and psychological nature when combining traditional approaches with the e-technologies, components and formats and they have to answer the questions what to use? how? when and why? That is why the questions about the choices that teachers and learners have to make, practical examples of the development and implementation of new innovative e-products, new psychological approaches how to build the atmosphere of collaborative learning and help learners to

develop could be of great interest for all participants of the educational process. Both educators and learners have to choose from the variety of forms when being in a new educational environment. Application of ICT opens up new opportunities in arranging educational environment. The new Web provides resources, tools and technologies that can make educational process social as they help create collaborative learning atmosphere. Various information communication technologies are used in the educational process in the National Research University Higher School of Economics (HSE). There could be mentioned videoconferences, webinars, presentations, blogs, forums, interactive dictionaries, visual thesaurus, concordance systems, web-sites, LMS system etc.). Working with 1, 2, 3 year students management faculty and teaching the English language as the second one the authors of the paper make use of the variety of ICT to reach the educational goals and motivate students to improve their language skills. For example, tricider.com [12] is an excellent tool for brainstorming and sharing ideas. Besides, it can be used to vote for or against the suggested idea and give your arguments. It makes learning experience social as it connects students with each other. Moreover, it teaches students to work in a team, listen to, agree, disagree, convincingly prove their points of view, give reasons and make conclusions. Tricider.com can be used as a preparation for a role play or other methods of active learning. As a home assignment a teacher may ask students to find the way out of the problem faced by the company or corporation. After brainstorming students suggest the solutions of the problem and then in the class they are acquainted with the way of resolving this dilemma, which actually took place. Thus, this method of training helps to increase motivation to learning, because the awareness of students that they not only analyze the problems related to their profession, but also discuss the real events, allows them to believe in themselves and provides an additional incentive to study. Students always expect activities and content to be relevant to the real world [1]. So, Tricider.com promotes interaction and collaboration of students and helps to move from instructor-centred methods of teaching to more contextual learning and real-world problem-solving techniques [9].

[ESLVideo](http://ESLVideo.com) [10] is an effective teaching tool of video based quizzes. Here there is a choice to create your own quizzes, you can ask as many multiple choice type questions as you wish or use available ones. It is possible to add transcripts, translation or notes to the video. What is also great is that the site can assess the work: students get the feedback on their answers and then their results are sent to the teacher (if the class are registered users of the site), so it can be done at home. Or a teacher may get students to create quizzes for each other as a home task. Speaking about teaching phonetics the role of ICT is also significant. It is possible to record your own pronunciation and compare it with the standard. Almost all modern dictionaries have audio translation and it is very useful in order not to make mistakes when speaking with people of other cultures (as different pronunciation always worsens understanding).

The purpose of another audio tool [voxpop.com](http://Voxpop.com) [13] is to record your own speaking for others to listen and respond to [7]. It is excellent for real communicative speaking and listening practice out of the classroom. This site can be used for writing dictations as well, when a teacher records a dictation text and gets students to write it down. It is also a great tool to record and practise pronunciation drills, which are very useful when studying a foreign language.

Students who wish to be a success in life should learn to acquire knowledge using different kinds of learning systems and platforms. Moreover, online learning can help teachers to save time while at the same time increase their offerings to students.

Web-related communication technologies, such as Quizlet [11], let learn words in a new, more interesting, exciting and, as a result, effective way. It is well-known that it is impossible to master a foreign language without constant exercising and drilling. And Quizlet is of great help here, as it allows in a playful manner to practise words and word combinations. Interactive flashcards ([language to go: prepositions flashcards | Quizlet](#)) are very effective for vocabulary practice. Using the technology students can improve spelling and pronunciation. Depending on the objectives and available time the teacher can use ready-made cards, as now there are more than 9 million sets of topics to choose from. Another way is to tailor cards to suit the requirements of educational programs or create own sets paying attention to the needs of a particular group of students, their level of knowledge and experience. It goes without saying that cards specially tailored for a certain group always give better results, as while making them teachers take into account characteristics of students, their preferences and needs. So, with the help of Quizlet.com it is rather easy and very convenient to approach individually to each group and even to a particular student.

Another advantage of using ICT in teaching English is the opportunity of working with tests. Almost all textbooks have already developed tests. The only thing the teacher has to do is to download them. The system will check them, paying attention to the number of attempts and time needed to complete the test of each student. Web-related tool Cloze test creator [15] is excellent for revising and testing. You can upload any text and choose what exactly you want to check. The choice is every n-word, articles, prepositions, link words, auxiliaries, wh-words, quantifiers or modals. You can also add clues if you wish. The interactive format of the tasks increases the motivation of students as it offers non traditional approach to revising the material.

Learning management system (LMS) is widely used in teaching practices in HSE. It enables to use a variety of e-forms from texts with hyper links, interactive glossaries, on line tests, presentations, projects. It is aimed at increasing the intergenerational cooperation between T-S and social cohesion in the university structure as it can be easily adjusted to different age groups. Teachers can create a variety of products from virtual libraries and language laboratories to simple testing in LMS. LMS is believed to offer a flexible pattern of interaction. The advantage of such a flexibility allows to face any external and internal challenges (age factor, cultural diversity, psychological reluctance etc) The aims of such educational products could be the following:

1. to support the teaching of the English language;
2. to reduce time-consuming process of producing, processing and disseminating information for English classes;
3. to increase personal involvement of any age groups in education in the university.

It is likely to create a personalized learning environment for the participants to take an equal share in learning process despite their individual space and learning cycles. The coordinator (the teacher) monitors only the outcome of the performance. The forms of the cooperation are the following: student-student, student-computer, student-teacher. The individual approach must include a practice-oriented tactics which involve

solving problems based on the participation and students engagement on an equal basis. We believe that the application of such an approach to T-S interaction will bring the following benefits:

- freedom and voluntary participation on students' behalf;
- guidance and feedback on teachers' behalf;
- parity and tolerance as the main features of T-S interaction;
- increased learning motivation of students.

Test master in LMS allows to use a variety of tests from traditional multiple choice to completing the sentences. It creates a flexible pattern of learning through different formats: individual, group activity, working in class and at home. Assessment system is automated and transparent as the students know the criteria. Feedback and guidance are given through the system of forums and blogs. The last but not the least pace of learning and level of difficulty can be tailored to individual needs. Implementation of LMS allows teachers to monitor the learning activities of students. Moreover, it helps teachers and students communicate, to make announcements, determine the time for examinations, set deadlines, get quick responses and feedback from students. The advantage of the system flexibility allows to face any external and internal challenges (age factor, cultural diversity, psychological reluctance etc). The other advantage that LMS can provide for improving students' motivation is wiki-tools. For example, Moodle, Blackboard, have built-in wiki tools, which are designed to collaborate, share and build online content and are especially useful for learners who are separated by time and place. Wikis are more effective for forwarding information compared to emails attachments with tracked changes, a method that supports only one editor at a time and can create issues with students having multiple and conflicting versions of the same document [5].

Google wiki sites can also be used to solve a variety of teaching problems and tasks. They are created to support a particular discipline. Such a technology provides the teacher and students with the opportunity to download and upload the information, to get an easy access to the materials, do projects. The sites could be a virtual platform for collaboration within the university structure.

Another important skill nowadays is the ability to make presentations. And again ICT are very useful here. Due to the goal and time available to achieve it presentations can be demonstrated during the lesson or the teacher can download them (for examples, from YouTube) and students will have an opportunity to watch them at home as many times as needed in a relaxed and comfortable atmosphere. The teacher may prepare the questions beforehand, such as: While delivering the speech did the presenter remember to face the audience and make eye contact with them? Was he/she logical? Did he/she emphasise key words? When presenting a detailed argument, were facts and figures used to support the ideas? Did the presenter use approximate or rounded figures? Were visuals very useful? etc. With the help of these questions the teacher can draw students' attention to various means that can make presentations effective, easy to follow and understand.

Using a variety of methods, techniques and tools the educator tries to build students' interest in the very process of communication. It is necessary to draw students' attention to the logic of the narrative, introduction and conclusion, usage of linking

phrases. The teacher should be ready to come to help using leading questions, prompting the required word, assisting in completing the thought. All these contribute to overcoming the psychological barrier and increasing communicative activity which is necessary to learn the art of communication [4].

The teacher should remember that education, as well as any other activity has not only cognitive aspects, but live communication also plays a huge role, which gives rise to emotions, feelings, promotes personal and professional growth. The teacher should try to find an individual approach to each student and create an environment of psychological comfort in the educational process. First of all it concerns the skill of teachers to dialogue, since the presence of communication barriers leads to a decrease in the quality of education and demotivation.

3. Conclusion

Finally, it is important to underline that there is not a single strategy how to achieve the desirable aim in education. Each teacher should use various methods and techniques, constantly explore new opportunities, study, develop their skills and abilities. It is necessary to remember what worked perfectly yesterday might now seem not only old-fashionable, quaint, but also ineffective and inefficient. New forms of asynchronous education require new approaches to teacher-student interaction. The role of the teacher becomes more complicated in the information society as teaching nowadays would require tutors to have the ability and pedagogical skills to combine new technologies with the traditional ones. So, in order to “survive” it is essential to be flexible, to adapt to changing conditions, develop and be in a continuous search for new approaches, ways and tools that can be useful in satisfying cognitive aspects of education, increasing motivation and productivity of learning. But it is necessary to remember that ICT are only means (certainly, very effective and powerful) that can be very useful for reaching the aim of education. Teachers should not forget about classroom communication, as education is not only studying but also upbringing and development. Therefore, it is vital to choose the correct material (text, audio, video) to draw students’ attention to ethical issues, social responsibility, cultural aspects and so on. Thanks to ICT it is easier to achieve this purpose of education as younger generation of learners are quick to adapt new technologies. Using ICT teachers can appeal to their feelings and bridge the gap that can exist between the generations in education process. We believe that students motivation can be raised due to creating certain pedagogical conditions such as:

- Motivation of both teachers and students to interact and collaborate;
- Individual approach to every participant of education process as the basis of interaction in the educational environment;
- Technologization of education process based on incorporating ICT into education.

Nowadays it is impossible to imagine educational process without e-learning. Various web-related communication technologies, learning management systems help teachers save time and increase their offerings to students, increase students' motivation and enhance their academic and social integration. Modern ICT let present new material on a higher level. Speaking about learning a foreign language it is difficult to overestimate the role of ICT. So, application of ICT, on the one hand, contributes to

the individualisation of education as it allows to study at one's own pace and, on the other hand, One of the possible ways how to overcome the problems while incorporating web-related technologies into the traditional system of education is the above proposed combination of e-learning components and technologies with an individual approach to T-S interaction that is likely to result in personal development of learners and increased motivation.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is surrounded by two large, overlapping, brush-stroke-like arcs. The upper arc is a light red color, and the lower arc is a light blue color. The arcs are thick and have a soft, painterly texture.

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General Education Model of Universities in Thailand

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Abstract

The purpose of this study was to describe the General Education Model of Universities in Thailand using mixed methods; quantitative and qualitative approaches. The samples were undergraduate students, lecturers and committees who involved with General Education of 3 universities in Thailand. The quantitative data from questionnaire were analyzed by descriptive statistics. In the qualitative phase, lecturers and committees were interviewed by the researcher and data were analyzed by content analysis.

The results showed that the goals of General Education were to promote a broad span of knowledge; to be logically and critically thinking; the capacity to work as a part of a team to solve the problems; and lifelong learning skills.

The contents were introduced students to a variety of topics; cultures; the natural and physical world, social sciences, science and mathematics, humanities, histories, and the arts, including knowledge to become citizens. The learning process used problem-based learning with student center approach. The learning outcomes were the broad knowledge of intellectual and practical skills, including inquiry, quantitative and information literacy, teamwork and problem solving; individual and social responsibilities, as well as ethical reasoning and action.

The suggestions from this research included as following: to understanding the philosophy of General Education; to encourage interaction rather than lectures; and should emphasize the contents which related to the social change; adjust the learning method, teaching materials and learning activities accordance with the interest of the students. In addition, the course should create the evaluation methods that can be measured the expected results.

Keywords: General Education Model, University

Background

The new social has been changed in any aspects including economic, society and the environment. Higher Education is increasingly emphasizing graduates' preparation for the workplace. To preparing people to cope with changes in the social world higher education have to build the graduates with wisdom and knowledge to develop a lifestyle that they can have a pretty good solution and creative society. Higher education is a key component to the development of human potential in every aspects. Fulfillment of the University's mission is to train individuals in various disciplines and profession's so they could face the globalization of the 21st century. In the context of social change, education have to be changed to conform to the social change.

The teaching and learning in higher education can be divided into two categories including general education which aimed to development complete human morality and spirituality as well as a graduate; and occupational courses specifically aimed to created tools for graduates to solve problems and met the needs of society.

The General Education (GE) program is an important program in higher education. It is also taught in conjunction with profession education in order to develop and produce perfect graduates. In 1989, 1999 and 2005 respectively, the office of Higher Education Commission, Ministry of Education has remodeled the program standard of the Bachelors level and has designed "General Education".

Ministry of Education 's standard undergraduate courses 1995, Board of Education has determined that the degree of required general education credits at least 30 credits and a definition of the category. General education refers to courses aimed at developing students' knowledge widely to be understanding the nature of them self and others, social learning, able to think rationally, good communicate, aware of the moral value of art and culture of Thailand and the international community and can apply their knowledge to use in their lives and in society as well.

At the present, each university has set general education in undergraduate courses . The nature of teaching and learning are variety and has different characteristics. To study the model of general education of university could lead to the development of educational approaches which consistent with the general philosophy of education. This study was done to describe the concept of general education, how general education are managed in the universities in Thailand and what are the problem's facing it, so that it results in the solution for the problem's. The result of the research will be used as guidelines in the development of education to develop graduates who achieve the goals of the University.

Objective

To describe the General Education Model of Universities in Thailand.

Scope of the Study

The model in this study including the philosophy, goal, structure, learning process, learning outcome, and obstacles of general education curriculum of the Universities in Thailand.

Literature Review

In the classic text on general education, Graff (1983) reported that the content of general education consists of courses from a number of content areas such as the liberal arts and sciences, courses that emphasize skills such as writing or critical thinking, global perspectives, woman's and minority perspectives, and values.

General education means the courses that aim to develop the students' knowledge widely, understanding others and their social, able to think rationally, good communicate, aware of the moral value of art and culture of both Thai and the international community, and can apply their knowledge to use in their lives and in society as well.

The development of general education courses including (Hook, 1975) are described as following:

1. The students can develop the ability to communicate clearly and effectiveness, and can speak and write well.
2. Students have the basic knowledge about the body and mind and beliefs, the reason for the well-being of human, understanding of the principles of the scientific method, the modern world of science and technology, nature and society.
3. Students have a better understanding about the role of both social, economic and history.
4. Students can find the facts and theories about the nature of social and psychological as well as conflict-oriented values and ideals, learn valuable link in a causal impact on the value of other and the difference between a biased judgment and rational values.
5. Capabilities and accuracy of finding relevant evidence were developed the ability is to be distinguished what is real or not vague.
6. Students with an understanding of local cultural heritage, art, literature, and music have to achieve appreciation and knowledge is important to the creative experience in the future.

Abrahamson & Kimsey (2002) refer to General Education in the James Madison University 's primary goal of General Education is to prepare students to become flexible thinkers and as a lifelong learner by a strong foundation of knowledge, skills and experience. The educator belief that the essence of the knowledge, skills and experience can be linked to all the branches and are essential to the success of the award and performance and can encourage students to be self-motivated. The subjects were divided into five groups such as:

1. Thinking and communicating effectively in both speech and writing, critical thinking, the use of technology and information among people using data and evaluation.
2. An appreciation for the arts and humanities as a critical component of the human experience with education and experience in the art of literature and understanding of their cultural and intellectual history.
3. The knowledge about science and math, use of assessment evidence, the model building and testing to develop the theory.

4. The political, social, economic motivations to study the processes and structures of the human experience as it relates to society and part of the global community .
5. Understanding of both the families and members of the various groups in society. The parameters are varied . The affect of human behavior in society through the exploration and development of each individual is responsible for the emotional, physical, psychological, social and ethical dimensions .

In conclusion, the general education curriculum is focused on high quality, able to promote and develop the capacity of students to have a good basic knowledge, skills with expertise in learning various subjects. The content that is linked with the economic, social, political, culture is an important part in the development of the learners. The teaching of general education courses should focus on the concept of general education. Linking and integrating content into the teaching process which are appropriate to the learners culture and society.

Methodology

Both quantitative and qualitative methods are used in this research. In the quantitative phase, the questionnaires were used to reveal the opinion regarding general education of the undergraduates in 3 public universities. The data were analyzed by descriptive statistics. In the qualitative phase, lecturers and committees of 3 universities were in-depth interviewed to reveal the philosophy, goal, structure, process, learning outcome, and obstacles of general education, and analyzed data by content analysis.

Ethical considerations in research, this study was carried out for testimonials from the research ethics board in human Mahidol University which has been approved by the research ethics board in human (2010/074.0111). The research was conducted in accordance with ethical research in human.

Research Results

The results from the quantitative study revealed that the opinion regarding to general education teaching and learning in the overall aspects the students also commented that is appropriate at a high level. However there are still some aspects that impede student learning including: the appropriateness of the classroom with small space, student lack of awareness of the importance of this course, and the appropriate of the measurement and evaluation.

Philosophy of general education

General Education are those subjects that place an emphasis on promoting the learners to have extensive knowledge, wide vision, the nature of themselves, others and the society. The philosophy of general education is based on the idea of human development which means the development in both the absolute and the balance of human nature which are physical and mental (emotion, thought and mind).

Goal of General Education

General Education is to provide students with the capability to become not only competent professionals, but also active and engaged citizens, as well as lifelong learners.

From the lecturers interview through General Education, we seek to groom our students to be capable of critical thinking, problem solving, global and multicultural awareness, creativity, ethical decision-making, team and collaboration, and effective communication.

Curriculum structure

The general education offerings included the humanities and fine arts, the natural science, mathematics, and the social sciences. The program also included courses that focused on the interrelationship between these major fields of study. The 3 universities divided subjects into 4 groups such as Humanity, Social Sciences, Science and Mathematics, and Language and Communication.

In these categories, we divided into group of subjects according framework on standard undergraduate learning outcomes which are the broad knowledge of intellectual and practical skills as following:

1. Moral, ethical, value of life in society: social responsibility/law, civic education/human rights, philosophy/religion/logic, aesthetics/arts/music
2. Analytical and critical thinking: managing literacy/research and math and scientific literacy
3. Culture and intellects: culture/multi-culture/ history/ local wisdom/ sufficiency economy
4. Communication: foreign language /communication/IT literacy and computer
5. Adaptation to globalization: social/economics/environmental/scientific/health issues that have impact on human life.

Learning process

Integrated learning and connections across disciplinary boundaries and general skills including lecture, group discussion, case study, project base learning; oral presentation, group project and group presentation and poster presentation.

Learning outcome

The assessment process on learning outcome of general education has been used many methods for examples: exam, discussion in class, performance of group projects, participation in group work etc. The learning outcome was evaluation based on domains of learning framework of Board of Education Commission, Ministry of Education.

1. Ethical and moral: habits of acting ethically and responsibly in personal and public life in the way that are consistent with moral standards. Abilities to resolve value conflicts through application of consistent system of values.
2. Knowledge: the ability to understand, recall and present information including knowledge of specific facts, concepts, principles and theories and procedures.

3. Cognitive skills and thinking skills: apply the knowledge of concepts, principles and procedures, analyze situation and apply conceptual understanding of principles in the critical thinking and creative problem solving.
4. Interpersonal skills and responsibility: the ability to work effectively in groups and exercise leadership.
Except personal and social responsibility, plan and take responsibility for their own learning.
5. Numerical analysis, communication and information technology skills: the ability to use basic mathematical and statistical techniques, communicate effectively in oral and written form, use information and communications technology.

Obstacles of general education

In 3 universities which were studied found that there were some obstacles to manage the program including: the students do not understand the importance of the subjects, class combined students with different backgrounds are difficult to design learning activity, class size effects learning activities: the smaller the class is better than larger class. There are some misconception of general education philosophy in both instructors and students.

Conclusions and implications

This article presented the general education model of universities in Thailand. The study was conducted through questionnaire and in-depth interview with instructors and students from 3 public universities. Analysis also included descriptive statistic and content analysis. The paper also exhibited the results from both quantitative and qualitative data. The opinion regarding to general education teaching and learning in the overall aspects the students also commented that is appropriate at a high level. However there are still some aspects that impede student learning included the appropriateness of the classroom with small space, student lack of awareness of the importance of this course, and the appropriate of the measurement and evaluation.

The general education in university that were studied with requirements from difference perspectives and contexts. They should design particular education, goals, resources, and students. The development of the general educational has been developed to be consistent with the changing landscape. The tendency to be focused on teaching the students, the professional knowledge and skills are a good basis for understanding and continuing to learn throughout life. The ultimate goal is to cultivate the good people with the knowledge and ethical. The general education model of universities in Thailand is the optional format which the applications should be adapted to the context.

The implications of the finding of this study regarding the general education model of universities in Thailand are described as below.

1. Instructors related to the general education courses should be considered to understand the philosophy of general education and goals of the course which lead to design the teaching methods to meet the goals of the course.

2. Encouragement of the learning process that focus on the student-centered, interaction rather than lectures, small class, interactive learning and group discussion.
3. Creation of the evaluation methods that can be measured the expected results.
4. Integrate learning with extra-curricular activities; participant to the activities of university; university social responsibility. Operates in conjunction with the family, religious institutions, community organizations together to define folk wisdom that can lead to the students learning.
5. Adjustment of learning method to accordance with the learning style of the new era student. Instructors should use new teaching technique and instrument such as E-learning, information technologies consistent with the passion of new generation.
6. Universities should work as collaboration with general education network to share experience each other.

Acknowledgement

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The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is partially overlaid by a large, faint watermark of a circular graphic composed of two curved lines, one light blue and one light red, forming a partial circle around the text.

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Language Use and Identity within the Virtual Community of Mahjoob.com

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Abstract

This paper introduces the virtual community of the Mahjoob.com website, a global community of 1,251 web forum posters, where globalizing and localizing technolinguistic trends are simultaneously manifested by web forum posters who strategically select between English, Arabic, and 3arabizi, an online Arabic-English hybrid language, in order to project different online identities. The presentation reveals that the Pro-establishment posters tend to use Standard Arabic as well as Salafi English whereas the Anti-establishment posters prefer 3arabizi throughout the debate. This occurs despite the fact that some of these same posters use their opponents' preferred languages in other discussion forums on the website. The paper indicates that, through use of formal language and style, pro-establishment debaters create online identities linked to Islamic orthodoxy. In contrast, the relatively informal style of the anti-establishment debaters serves to position them as bona fide members of the 'Arab street'. Thus, in an entirely asynchronous online context, identity is both fluid and highly contextualized and Arabic-English bilinguals are sophisticated language users who exploit stylistic variations within their texts to project divergent identities.

1. Introduction and Background

This paper investigates online language use and identity on a popular website based on Jordan, Mahjoob.com. The research presented here is part of findings from a doctoral study that examined the varying roles and distributions of Arabic, English, and *3arabizi*, a hybrid language that combines elements of both Arabic and English (see Al Share, 2005; Palfreyman & Al Khalil, 2003; Sakarna, 2006; Warschauer, El Said, & Zohry, 2002) (see below), within the English language discussion forums of Mahjoob.com (Bianchi, 2013).

The guiding research question behind the present paper is:

In light of the overall code patterns in the corpus, how do forum posters use these different codes strategically to create distinct identities?

The study takes a discourse analytic approach to examine identity through the strategic use of Arabic, English, and *3arabizi* with the mahjoob.com corpus. Specifically, the research focuses on an online debate found within the corpus between supporters of the Saudi government and its morality police, which have been labeled the Pro-establishment camp. Their opponents, the Anti-establishment camp, argue vociferously that the morality police and indeed the whole Saudi political-religious complex are corrupt and pander to Western interests despite their veneer of Islamic rectitude. But before discussing the actual results of the debate analysis, a brief introduction to the corpus and the website from which it is derived is in order.

1.1. The mahjoob.com corpus

The mahjoob.co corpus, upon which the current study is based, is a collection of 460,220 discussion forum messages found in 21,626 discussion threads on the eponymous website. In terms lexical items, the corpus contains over 37 million tokens and some 1.4 million unique word types (including spelling variants). The corpus was created from forum messages that were downloaded with permission from Emad Hajjaj, the website owner (see Hoffmann, 2009). The corpus contains all the forum messages found in the English section's forums spanning the period from March 2007 until May 2008. The website itself represents a virtual community (cf. Paolillo, 1999; Perrotta, 2006) of 1,251 web forum users who use various languages that represent both local and globalizing linguistics trends. On the surface, though, the website has an Arabic section and an English section, where one might expect each of these languages to be used respectively. However, even cursory observation reveals that the linguistic composition of either section of the website is far from homogenous as seen in Figure 1 below, which shows the homepage of the English section of the website, from which the corpus was downloaded:

Figure 1: Mahjoob.com homepage

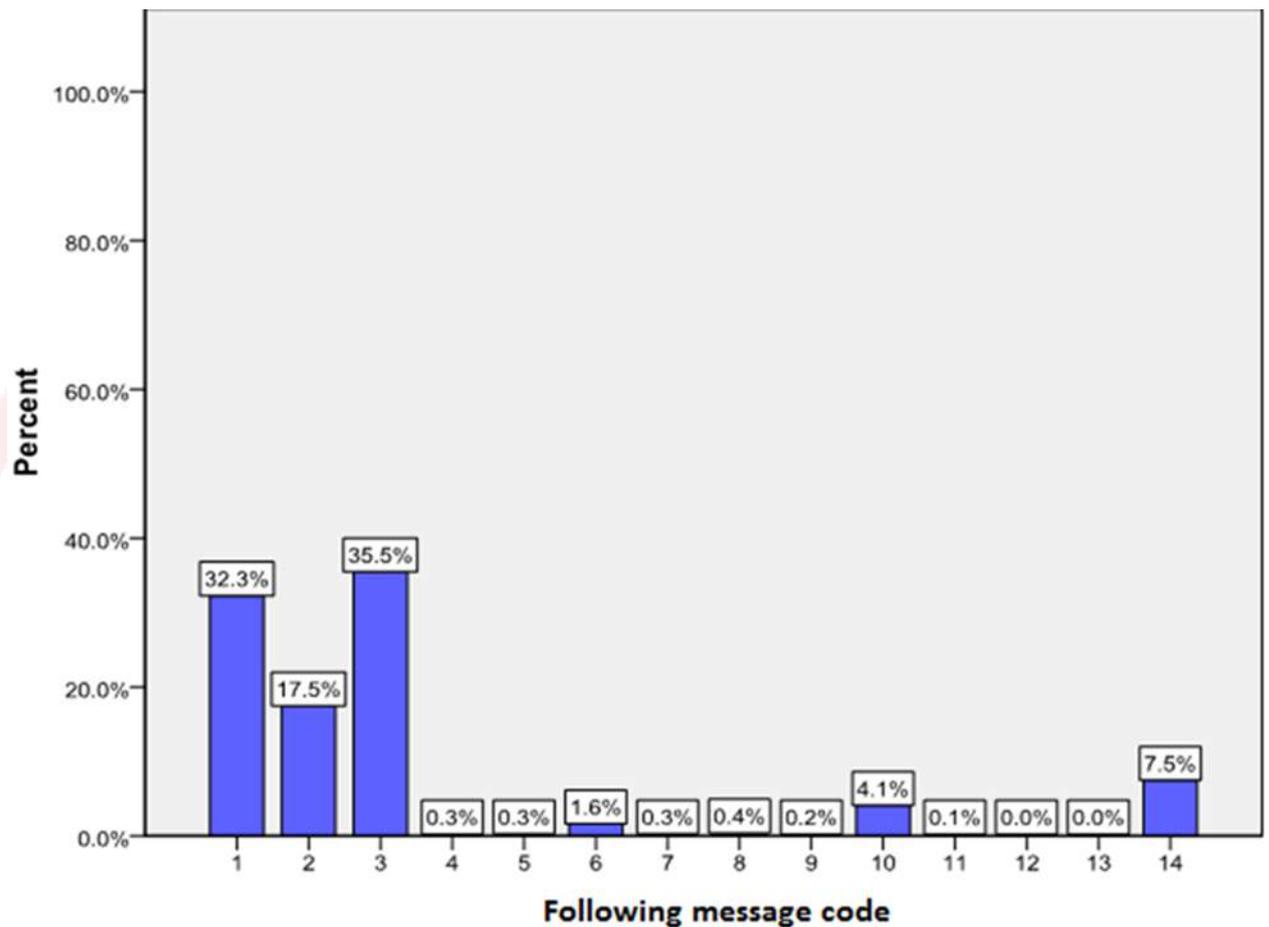


1.1.1. Language Types found in the mahjoob.com corpus

As can be seen in Fig. 1 above, although various pieces of information and titles are written in English, the cartoon of Abu Mahjoob, the main character after whom the website is named, is written in Vernacular Arabic in Arabic script. Still other forms of language are apparent such as 3arabizi (Vernacular Arabic written in Latin script with arithmoglyphemics) in the bottom left corner of the webpage where the forum *e7ke wfadfed* (roughly translated ‘get it off your chest’).

The corpus itself was analyzed to determine which codes (i.e. languages) were present. Figure 2 below gives a breakdown of these codes in terms of the percentage of messages composed in each code in the entire Mahjoob.com corpus¹.

¹ It is important to point out that this table shows following messages, the messages that appear after the first message in a discussion thread. This is because following messages were found to be more indicative of the general use of language in the corpus since seed messages, the first messages in each thread were found to feature more English and Arabic because of their informative, formal nature as topic starters.

Figure 2: Code Distribution in Following Messages in the Mahjoob.com corpus

Here are the linguistic compositions of Codes 1-14 as listed in Figure 2 above:

- Code 1: Arabic-scripted Arabic
- Code 2: BNC English
- Code 3: 3arabizi
- Codes 4-9, 11-13: Arabic script and Latin script mixed codes
- Code 10: Salafi English
- Code 14: Non-BNC English

As can be seen in Figure 2, Arabic-scripted Arabic (Code 1), BNC English (Code 2)², and 3arabizi (Code 3) were the dominant codes in the corpus followed by non-BNC English (Code 14), and Salafi English (Code 10). For the purposes of the present article, Arabic-scripted Arabic, BNC English, 3arabizi, and Salafi English will all be discussed in further detail since these were the primary codes found in the debate examined here. Thus, in the next few paragraphs, samples of these four codes, taken directly from the debate, will each be presented and described.

1.1.2. Arabic-scripted Arabic

وصدقتني عندما تعود إلى الأردن وتخرج في المساء وتطلّ برأسك من

² BNC English is called thus because it was identified in the corpus using the British National Corpus (BNC) wordlist.

النافذة وشاهد شابا وفتاة يزنون في
السيارة أمام منزلك ستعلم أهمية الهيئة

-Muslim4 , Pro-establishment poster

Translation:

And believe me, when you return to Jordan and you go out at night and you lift up your head to look into the (car) window and see a boy and a girl fornicating in the car in front of your house, you will appreciate the importance of the committee (against vice).

In this example, which contains only Arabic-scripted items, the level of language is very formal without any Vernacular Arabic items. This is typical of the type of Arabic found in the debate. However, it is worth noting that elsewhere in the corpus, the Arabic-scripted Arabic was often written in very informal, and Vernacular Arabic. In terms of the entire mahjoob.com corpus, just under a third of all following messages in the corpus were written in Arabic-scripted Arabic although many of these contained Vernacular items as well, unlike the highly formal example above.

1.1.3. BNC English

You always repeat the same things without any proof.

- Snipe_aac, Pro-establishment poster

As can be seen in this example, BNC English contains only English items written in Latin script. In the entire corpus, only 18% of all following messages were written in BNC English. This is somewhat surprising since the corpus was derived from the so-called English section of mahjoob.com. Clearly, other codes especially 3arabizi discussed in the next section were more prevalent than English on the website.

1.1.4. 3arabizi

wbeejo begoolooly enno elhai2a btenteqed elmashayekh.

6ayyeb...does anyone know the phone number for the hai2a?

I'd like to inform them that 300 billions of gulf money is helping the economy of "their enemy" as they claim. 😊

- Kharoof Tayeh, Anti-establishment poster

Translation:

And they come tell me that the committee admonishes the shaikhs. Okay...does anyone know the phone number for the committee? I'd like to inform them that 300 billions of gulf money is helping the economy of "their enemy" as the claim. Whistling smiley

In the example above, it is seen that 3arabizi contains English items with Arabic items written in Latin script and features 'Arithmographemics' (Bianchi, 2005) i.e. numbers used as letters (e.g. *hai2a*) Also, typical to 3arabizi as shown here is the frequent use of smileys (e.g. 😊). In terms of the entire corpus, over a third of all following messages were written in 3arabizi making it the most popular code within the English website forums. Thus, it might be said to be the most normative code among website users within the English section of Mahjoob.com. As such, it contrasts sharply with the relatively rare Salafi English (cf. Mujahid, 2009), which also features both English and Arabic items in Latin script, discussed in the next section.

1.1.5. Salafi English

You seem to harbour much hatred for the Hay'ah.

If you really have a complaint and are sincere this is the phone numbers for the ra'ees:...

- Snipe_aac, Pro-establishment poster

Translation:

You seem to harbor much hatred for the committee. If you really have a complaint and are sincere this is the phone numbers for the head (of the committee).

This example highlights the common features of Salafi English³, namely mainly formal English vocabulary and style but with transliterated Arabic items inserted as well. Yet, unlike 3arabizi, Salafi English makes use of apostrophes where 3arabizi would use arithmographemes such as '2' and '3'. In addition, Salafi English typically uses double-vowels to indicate Arabic long vowels, whereas 3arabizi tends not to indicate these.

In terms of overall prevalence within the Mahjoob.com corpus, only 4% of all following messages were written in Salafi English making it one of the rarest codes in the entire corpus. Yet, interestingly, in the debate that will be discussed below, Salafi English is frequently used.

Now that the principal linguistics codes found in the debate have been discussed, the next section will discuss the data and methodology adopted to analyze the corpus for identity-related language use within the debate.

2. The Data and Methodology: Analyzing *Religion Forum* Thread 206940

A single thread was selected from the website, Thread 206940 entitled "Masha2a allah, Masha2a allah" (lit. 'what God hath willed, what God hath willed'). This thread was found in the *Religion Forum*. This thread was selected for analysis of identity because it met three important criteria. First, it exhibited great linguistic heterogeneity. This meant that the use of different codes could be contrasted within to determine if any of these code choices reflected identity-related motives. The second criterion which the thread met was length. As the longest thread in the corpus (it contained 322 messages), identity-related linguistic patterns could be investigated over several lengthy interactions between its posters. The third and final criterion was linguistic unconventionality. In this regard, Thread 206940 was notable as the only thread to have more Salafi English than 3arabizi. Thus, such atypical code use might betray identity-related motives

³ The Salafis are linked to the Wahhabi ideology, espoused by the Saudi government and other GCC states such as Qatar, Bahrain, the UAE, and Kuwait (see Lane, 2008, pp. 227-228). 'Salafi' derives from the salaf al-sāliḥ (lit. 'the pious ancestors'), early Sunni Muslim scholars 'saints'. Modern Salafis advocate a return to a pristine Islam as practiced in the days of the Prophet Mohammed and immediately afterwards. Lane (2008) notes that Salafis are a widely divergent group in terms of ideology and political activism (p. 228). Although Bin Laden and his followers claim to be Salafis, their advocacy of violent uprising against corrupt Muslim rulers is condemned by other Salafis such as Snipe_aac (see below), who argue for political acquiescence in the face of Muslim tyranny. For a large sample of typical Salafi English texts, the reader is directed to visit sahihalbukhari.com, a popular Salafi English website.

In terms of methodology, Thread 206940 was read several times and translated into English. Consequently, messages 1-75 were selected as a subset for deeper analysis because they focused on a single topic, a debate on moral authority in the Kingdom of Saudi Arabia (KSA).

Using Fairclough's (2003, p. 162) notion of linguistically-realized styles or 'characters', i.e. recognizable stereotypes, four main posters were identified and described in terms of the distinct identities they each projected through code use based on their ideological positions within the debate, which will be described in the next few sections.

3. The Findings

This section consists of a discussion of the four main posters in the debate, starting with a brief overview of the debate, followed by the main assertions of each side of the debate, and ending with a presentation of the linguistic traits of each poster in light of their ideological positions, showing how these contribute to the creation of distinct, opposing identities. To begin, here are the four main posters in the debate:

Anti-establishment:

Kharoof Tayeh (lit. "lost sheep")

Guillotine

Pro-establishment:

Snipe_aac

Muslim4

3.1. The Debate

Kharoof Tayeh starts the thread by copying an Arabic-language news article from Al-aswaq Al-Arabiya, an Al-Arabiya News Channel website, which reports that GCC governments gave billions of dollars to Western nations shortly after 9/11. Thus, Kharoof Tayeh's launches the following question: In light of the above article, why do the Hay'ah (morality police) in KSA pick on citizens and ignore such anti-Islamic behaviour on the part of the authorities?

3.2. The Anti-establishment Stance

The Anti-establishment posters make several assertions:

1. Muslim leaders lose legitimacy when they aid the enemies of Islam or behave in un-Islamic ways, so such leaders should be challenged and removed if necessary.
2. The religious authorities and morality police should admonish the leaders, not just the citizens.
3. The current establishment in KSA is pro-Western and corrupt

3.3. The Pro-establishment Stance

In contrast, the Pro-establishment posters make several counter assertions:

1. According to the Sunnah, there are never any legitimate grounds for rebelling against a Muslim ruler
2. Suggesting that leaders should be challenged is a sign of spiritual treason and heresy (cf. the Kharijites, the ‘Seceders’)
3. A tyrannical Muslim leader is sent as a punishment by God and this should urge believers to recommit themselves to Islam and be forbearing with their leader

Now that the main assertions of the debate have been presented, it is opportune to examine the specific identity-related features of each of the four main posters in the debate.

3.4. Anti-establishment Poster 1: Kharoof Tayeh

Kharoof Tayeh, portrays himself as one of the ‘shabab’ (an Arab youth ‘one of the boys’) through his use of 3arabizi exclusively throughout the debate, he identifies himself with the rest of the Mahjoob.com website posters who tend to use 3arabizi as well. He presents himself as an anti-establishment, disgruntled populist in other words, a *bona fide* member of the ‘Arab Street’. To make his points, he copies and pastes a news article in Arabic but does not compose messages in Arabic himself. He also claims not to be such a scholar, but to know right from wrong. As with most 3arabizi users, he uses smileys and humour extensively in his posts, thus lightening the tone of his biting remarks and maintaining an informal, personal style.

3.5. Pro-establishment Poster 1: Snipe_aac

Snipe_aac contrasts greatly with Kharoof Tayeh, who is one of his main adversaries in the debate. As a Pro-establishment poster, he positions himself as a defender of the “Divine Order”, in which rulers are placed in positions of power by the Almighty, and thus, are not meant to be removed by man. Snipe_aac also portrays himself as a well-versed and serious student and follower of Islam by quoting the Qur’an and several Islamic traditions and the works of Muslim scholars throughout his various posts. Linguistically, Snipe_aac uses Salafi English almost exclusively, appearing Western-educated because of the formality of his English. Also, through his several quotes, he identifies himself directly with Salafi thinkers and proponents. Stylistically, Snipe_aac avoids the use of smileys and humour entirely in stark contrast to Kharoof Tayeh, thus, portraying the image of the austere student of Islam for whom frivolity and light-heartedness are not becoming.

3.6. Guillotine: Anti-establishment Poster 2

On the same ideological side of the debate is the Anti-establishment poster, Guillotine. Like Kharoof Tayeh he presents himself as a disgruntled populist through his occasional use of 3arabizi especially in response to other Anti-establishment posters like Kharoof Tayeh, with which he identifies ideologically. Yet, Guillotine also style-switches frequently when he interacts with the Pro-establishment posters, using Standard Arabic and formal English on occasion. Thus, Guillotine uses Arabic with Muslim4 and Arabic and English with Snipe_aac. When Guillotine does use formal English and Arabic, he portrays himself as a well-versed student of Islam by quoting Qur’an and Hadith in Arabic or in English translation. Indeed, he often cites Hadith urging jihad against a ‘tyrannical ruler’ since he believes that is fundamentally wrong to obey corrupt un-Islamic authorities.

3.7. Muslim4

Muslim4 is quite unique in that he virtually only uses a very formal Arabic throughout the debate, despite his apparent knowledge of English. For instance, he reads English posts, but replies to them only in Arabic. The single time that he himself actually uses English in the thread is when he copies and pastes an English-language posting of Snipe_aac's English in order to counter an assertion of Kharoof Tayeh.

As such, Muslim4 portrays himself as an Arabic-dominant serious student of Islam. Like Snipe_aac, his Pro-establishment partner, Muslim4 quotes Hadith, albeit in Arabic, and avoids the use of smileys and humour entirely within the debate. Thus, like Snipe_aac, Muslim4 is also a defender of the 'Divine Order'

Yet, Muslim4 is one of the most intriguing of the four posters because, outside of Thread 206940, Muslim4 certainly does use English, even in a humorous way. Note, for instance, the following tongue-in-cheek English-language posting to a question in the *Girls Corner* forum about whether other girls wear hijab:

i dont wear hijab 🙄

Here, not only does Muslim4 use English and a smiley, but he also flaunts the fact that has a man he is under no Islamic obligation to wear hijab, rendering his own post hilarious and absurd. Thus, it is clear that for the purposes of the debate within Thread 206940, Muslim4 assumes a very somber and serious tone, but elsewhere, he projects a light-hearted joking style and thus, a very different identity, a shabab identity akin to his opponent Kharoof Tayeh's within the debate.

4. Conclusions

In conclusion, the findings can be summarized as follows for Pro-establishment and Anti-establishment posters:

Pro-establishment posters:

- Index learned, religious identities through use of Qur'anic, hadith, and scholarly quotations
- Only interpret Islam according to Salafi scholars
- Identify with Salafi scholars, by rejecting 3arabizi and/or informal English outright, using either Arabic-scripted Arabic or Salafi English
- Maintain serious and formal tone (no smileys)

Anti-establishment posters:

- Index popular identities by using 3arabizi like most other Mahjoobians
- Identify with 'the Arab Street', advocating for the 'the people' against the Establishment
- Dare to interpret Islam on their own
- Use smileys and humour to maintain a more intimate and personable style

This study has shown that posters within the discussion forums of Mahjoob.com, a virtual community, are sophisticated language users who have a variety of linguistic codes available to them in order to strategically pick and choose from. Such choices are clearly not neutral insofar as they help their users to portray distinct identities that

they deem appropriate to the circumstances of their interactions as exemplified by Muslim4's serious Arabic-language tone within the debate in Thread 206940 in contrast with his light-hearted, tongue-in-check English-language tone as he teases playfully within the Girls Corner discussion on the wearing of hijab.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, serif font. The text is surrounded by two large, overlapping, brush-stroke-like arcs. The upper arc is a light red color, and the lower arc is a light blue color. The arcs are thick and have a slightly irregular, hand-drawn appearance.

iafor

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*A Computer Game for Cultural Learning and Promotion:
A Case Study of Thai Risk-Loss Cultures*

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Abstract

In this modern world, communication and transportation has become more convenient and faster than before. This rapid growth of globalization has made many changes in our culture and society around the world. Thai culture and society has been also influenced by the effects of globalization. Especially, the influence of western societies has led to cultural changes dramatically in Thailand. Since Thailand has become a popular destination for many tourists from around the world, the cultural changes become serious problems. Nowadays, Thai pupils and students have less knowledge about Thai culture than before. The new Thai generations have forgotten their own traditions and customs. Some Thai traditions and customs are in risk to be lost. The festival of dead ancestors merit days, called Thai Sart days, is one of risk-loss cultures. Although change is inevitable, each country's traditions and customs should be passed to its next generations. Therefore, this study aims to reinforce the knowledge of Thai traditions and customs to the new generations by using computer game-based learning. The festival of Thai Sart Days was selected as a case study. Ten subjects were voluntarily selected to evaluate it for users' satisfaction in terms of its design, performance, and value-added outcome for knowledge gained. The results of elementary evaluation were rated as very good quality in all categories.

Keywords: Computer game, Cultural promotion, Game-based learning, Risk-loss culture.

1. Introduction

Since Thailand, formerly known as Siam, is a small country and the nation has been developed under multi-cultures and diversities, Thai culture has its own unique and new integrated adoption. Thailand is located in the mainland of Southeast Asia. Some studies have suggested that Thai people came from the Tai group who settled at the southern area of China and migrated into the present area where it was inhabited by Mons and Khmers [1],[2]. These studies were based on the focus of Tai linguistic diversity occurring today as well as some evidences from historic, archaeological and cultural records. However, some new studies have suggested that Thai people have their origins in the present area and moved around from the Indochina and Malay peninsula to the southern area of China [2]. These studies were based on gene frequency and blood-group evidence. The results of these studies suggest that Thai people are not from Chinese people. They have evolved with the co-habitation of indigenous people and some ethnic groups such as Mons, Khmers, and Laotians since agricultural societies were settled here by about 3000 BC [1]. There still remains the question of where Thai people came from.

The main four parts of Thailand, consisting of the central, northern, north-eastern, and southern parts, have their own identities, traditions and dialects [3],[4]. Along with its history, cultures from several countries have influenced Thai cultures, especially Chinese and Indian cultures. Indian cultures affected Thai culture with the belief of Buddhism. Thailand has accepted several sects of Buddhism such as Mahayana, Theravada, Hinayana (a variation of Theravada). Thailand also founded the Dhammayuttika sect [5]. The majority of Thai people are Buddhists. Chinese immigration in the past also affected Thai cultures. Along the border of Thailand, Thai culture has been affected by its neighboring countries such as Myanmar (previously named Burma), Laos, Cambodia, and Malaysia [6]. During the past decade, cultures from western countries have led to cultural changes in Thailand dramatically.

Jiazheng has highlighted about culture in [7] that “*Culture is a field with a great variety of categories, different levels, functions and tolerance. Generally speaking, the functions and roles of culture in education, inspiration, molding of character, esthetics and enjoyment, are largely manifested in an indirect and profound way, and in subtle imperceptible change. In this sense, culture is like water, which silently seeps into and nurtures all forms of life. Culture is the best channel to reach people’s hearts*”. He also discussed in his book about the basic elements of culture in four aspects: (1) knowledge (2) sentiment (3) social ethics and (4) belief.

In recent years during this digital era, computer and information technologies have become one of several human needs. Various software products are provided for these technologies. Computer games are one of most popular software products. Although many computer games have been introduced to players, a few of them are related to cultural learning and promotion. Therefore, in this study, a computer game for learning and promoting risk-loss cultures was proposed.

The following sections will be organized as follows: we will give basic ideas about

computer games and game-based learning in Section 2. Later, a case study of Thai Sart Days will be introduced in Section 3. Section 4 will present some concepts about analysis and design of our computer game as well as its implementation and evaluation in Section 5 and 6 respectively. Finally, we will draw conclusions of our study.

2. Computer Games and Game-Based Learning

Computer games have both positive and negative impacts and outcomes [8],[9]. Many kinds of computer games are available as commercial and non-commercial products, especially entertainment games such as action, adventure, fighting, puzzle, role-playing, racing, sports, strategy, simulation, virtual reality, and animated tutorial games [10]. Some children become computer game addicts. Their parents are concerned with serious and violent computer game addiction. However, some researchers have tried to distinguish between computer game addiction and high engagement in order to get a better understanding of player behaviors because this would affect human life and learning process [8], [9]. The effect of violent and non-violent computer games were also studied [10],[11],[12],[13]. Besides their use for entertainment [14], computer games have been successfully used for education and learning. Successful learning in terms of enthusiasm and motivation, determination to reach a high standard of achievement, learning as a group or private, and linking and applying learning in new situations, was discussed and reported in [15]. Playing computer games is also linked to an increase in cognitive performance [11].

The basic design of educational computer games is concerned with learning objectives and learning outcomes for target groups. Pedagogical requirements should be also considered for game design, such as integration with online education, adaptation, and assessment [16]. In addition to the outcome of content understanding and knowledge acquisition by a player as a learner, enjoyment outcome of playing games should be added in design features for educational computer games, such as characters, graphics, music and sound effects, story, rewards, challenging goals, rules and guidelines.

3. Case Study of Thai Sart Days

Some Thai traditions and festivals came from the religious belief, especially the belief in Buddhism. The festival of Thai Sart days came from the belief in Buddhism about reincarnation and reincarnation levels (hell and heaven) when people die they might reborn again in any reincarnation level depending on their sins. A good person would be reborn as a good form in a good place such as heaven while a person who did bad things would be reborn as a bad form in a bad place such as a suffering demon or a hungry ghost called a '*pret*' [17]. The '*pret*' could be in any shape depending on its sins. It is usually imagined as a tall and thin body, a long thin neck, protruding eyes, and a tiny mouth with a very long tongue because of its hunger. Figure 1 shows some examples of sculptures, paintings about the '*pret*' spirits, their punishment, and the festival celebration. The festival of Thai Sart days is the annual merit-making ceremony for dead ancestors and celebrated during the tenth lunar month or in September or October each year [18]. It is believed that the '*pret*' spirits are allowed

to come back to meet their relatives for fifteen days during this period. Each part of Thailand has a different name for this festival and celebrates it in different ways. The '*pret*' spirits are welcomed to the earth by their relatives on the first day and are sent back to hell on the last day. These two days are the actual merit-making days. Especially, on the last day their relatives take food and desserts to temples to make merit. Some food is given to monks and some food is given to the '*pret*' spirits by inviting them to eat. In some areas of Thailand, people offer five specific kinds of desserts to the '*pret*' spirits: (1) '*pong*' representing a raft for travelling (2) '*la*' representing clothes (3) '*kong*' representing gems and jewelry (4) '*desum*' representing money, and (5) '*ba*' representing a kind of fruit seeds for playing local sport. The shapes of these specific desserts are made to look like their representation.





Figure 1. Sculptures, paintings about the ‘*pret*’ spirits, their punishment, and the festival celebration [Source : www.oknation.net, www.palaungdham.com]

Nowadays, the new Thai generation realizes that the belief of the ‘*pret*’ spirits, reincarnation and reincarnation levels are senses of strategic warning to people not to do bad things during their lives. Thus, they tend to abandon the festival of Thai Sart days. Some sects of Buddhism have tried hard to convince the new Thai generation of this belief by creating visual models or paintings or story telling while some sects educate people about hell and heaven in the senses of body and mind and in the way of causes and effects. However, there are other strategic reasons of its celebration in senses of sharing and meeting among relatives and friends for a merit-making ceremony to pay respect to all supports after finishing harvest time, as well as to pay

respect to their deceased ancestors. Therefore, this tradition should be promoted and passed to the new Thai generation.

4. Analysis and Design

4.1 Characters Analysis and Story Board Design

From the belief of Thai Sart days, cultural elements, knowledge elements, and entertainment elements were adopted for game designs such as characters, screens, rules, goals, and guidelines as follows: (1) the cultural elements consisting of the '*pret*' characters, the reincarnation levels, the punishment, the merit-making food and desserts; (2) the knowledge elements consisting of knowledge boards and tests of knowledge gained from playing the game; (3) the entertainment elements consisting of challenging goals, dangerous monsters and objects, and life power value. Text, sound and effects were used to add more value in these elements.

A player can choose to play as a male or female '*pret*' spirit. These two '*pret*' spirits were designed as shown in Figure 2 and Figure 3. The player will try to pass each reincarnation level. There are five levels as shown as Figure 8 to Figure 12. If the '*pret*' spirit succeeds to pass the current level, it will be reborn in the next reincarnation level. During its adventure at each level, it will be faced with monsters and dangerous objects as shown as Figure 4 and Figure 7. Its life power value will be reduced if it is punished by these monsters and objects and will be increased if it gets merit-making desserts as shown as Figure 5 and Figure 6.

The story-board design is corresponding to the following brief description.

1. A player starts playing a computer game.
2. The pretest is administered to measure the player's current knowledge about the festival of Thai Sart days.
3. The player selects the form of '*pret*' spirits.
4. The player as a '*pret*' spirit takes an adventure through the level 1.
5. The '*pret*' spirit finds the level-1 knowledge asset.
6. The '*pret*' spirit answers the level-1 questions for passing to the next level.
7. The '*pret*' spirit takes an adventure through the level 2.
8. The '*pret*' spirit finds the level-2 knowledge asset.
9. The '*pret*' spirit answers the level-2 questions for passing to the next level.
10. The '*pret*' spirit takes an adventure through the level 3.
11. The '*pret*' spirit finds the level-3 knowledge asset.
12. The '*pret*' spirit answers the level-3 questions for passing to the next level.
13. The '*pret*' spirit takes an adventure through the level 4.
14. The '*pret*' spirit finds the level-4 knowledge asset.
15. The '*pret*' spirit answers the level-4 questions for passing to the next level.
16. The '*pret*' spirit takes an adventure through the level 5.
17. The '*pret*' spirit finds the level-5 knowledge asset.
18. The '*pret*' spirit answers the level-5 questions for passing to heaven.
19. The post-test is administered to measure the player's current knowledge about the festival of Thai Sart days.
20. The game overs when the '*pret*' spirit runs out of its life power value.



Figure 2. A male '*pret*' spirit



Figure 3. A female '*pret*'



Figure 4. The monsters in the level-1 to the level-5

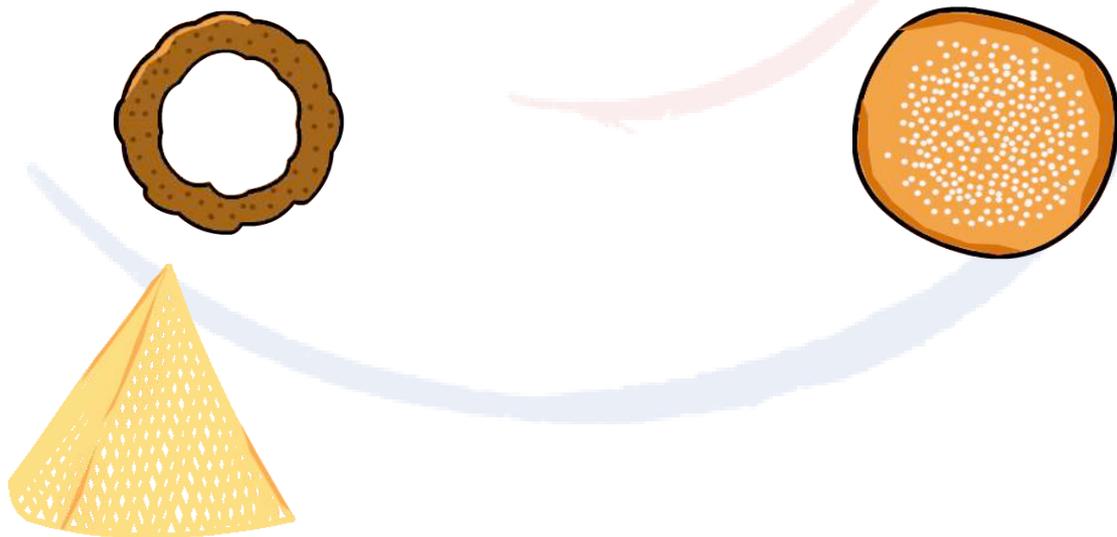


Figure 5. The merit-making desserts called '*desum*', '*ba*', and '*la*' respectively



Figure 6. The light showing life power value

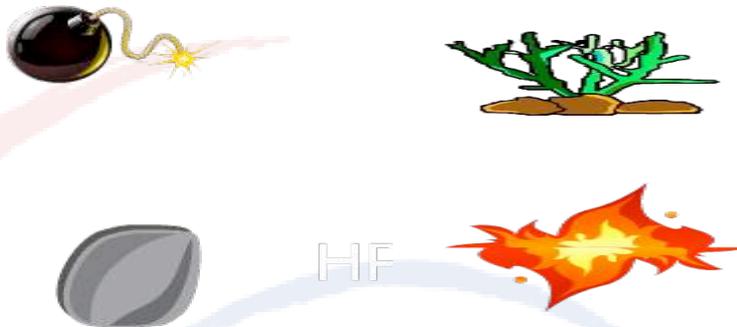


Figure 7. The dangerous objects



Figure 8. The screen of level-1 reincarnation



Figure 9. The screen of level-2 reincarnation



Figure 10. The screen of level-3 reincarnation



Figure 11. The screen of level-4 reincarnation



Figure 12. The screen of level-5 reincarnation

4.2 Process Analysis and Design

After characters and story boards were designed for the proposed computer game, the computing states corresponding to its goals, rules, and story boards, were analyzed and designed for its implementation. Some examples of the computing state diagrams are shown as Figure 13 to Figure 16.

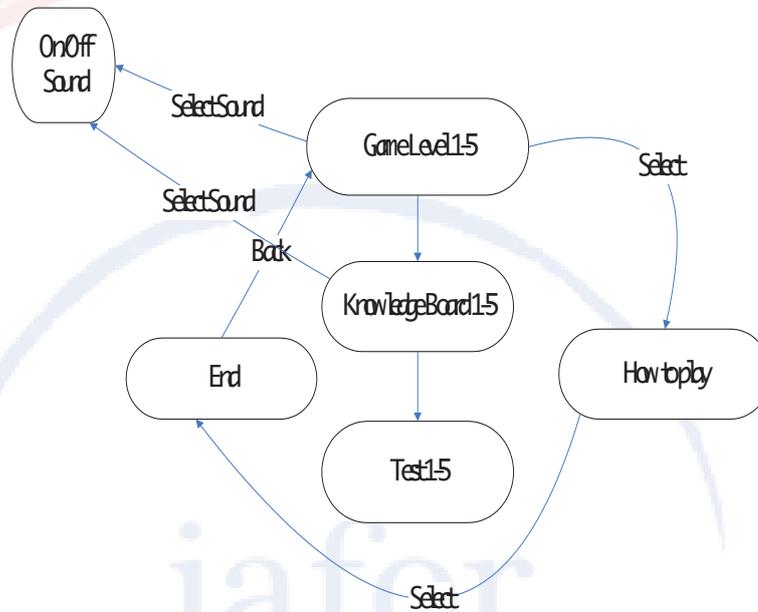


Figure 13. The state diagram for game playing process

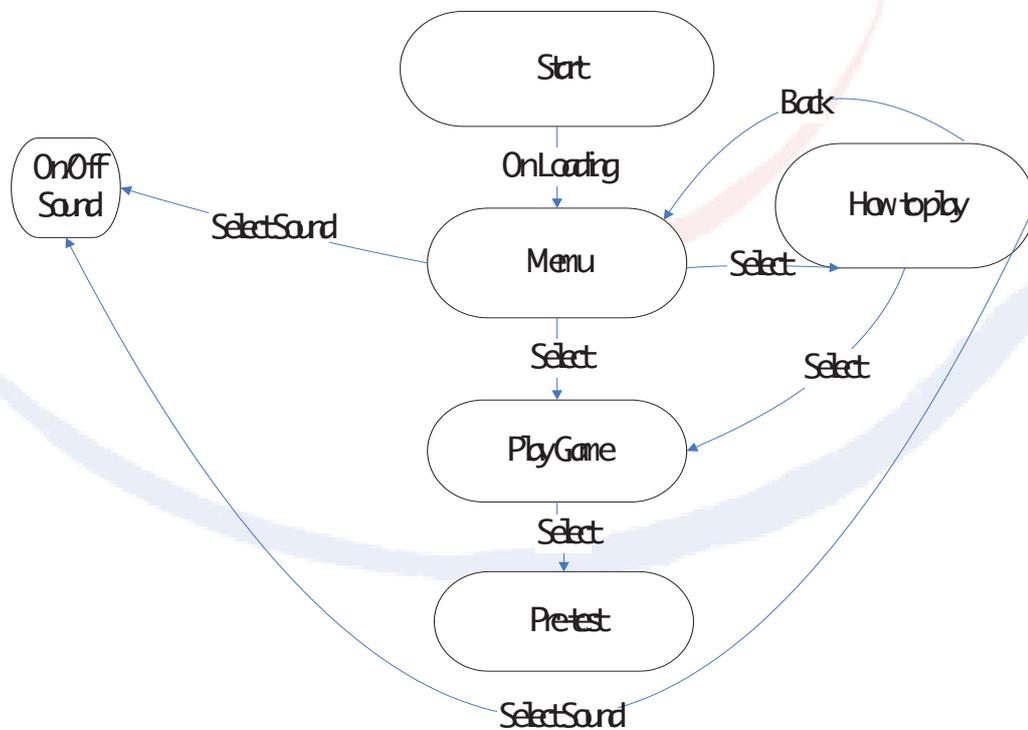


Figure 14. The state diagram for the main process

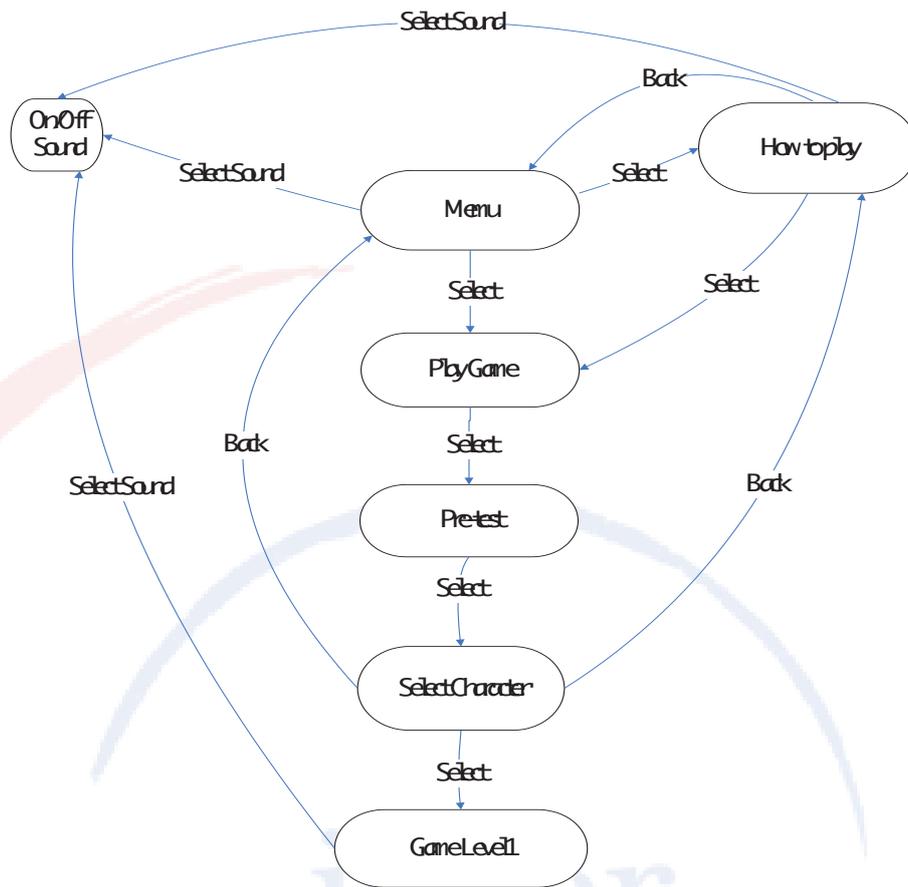


Figure 15. The state diagram for character selection process

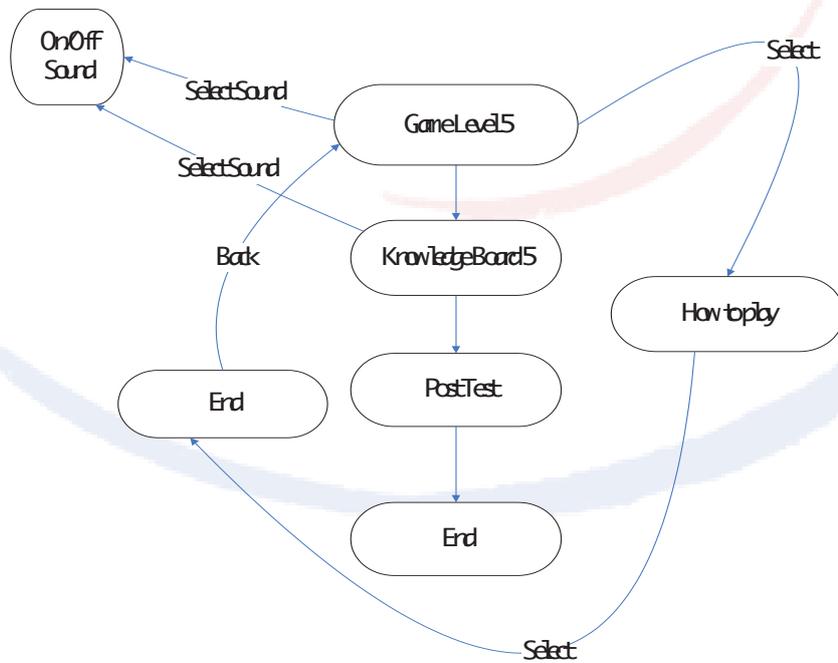


Figure 16. The state diagram for pos-test administration process

5. Game Implementation

From character analysis and design, storyboard design, process analysis and design, the proposed game was developed. Some examples of user interfaces are shown as Figure 17 to Figure 20. Figure 17 shows the main menu. Figure 18 shows the 'pret' spirit's adventure going through monsters and dangerous space over the fire at the level-1 of game while Figure 19 shows the final goal of this level where the 'pret' spirit finds a box of knowledge asset and appearing as a knowledge board as shown as Figure 20. After reading this knowledge, the player will answer the level-1 questions to go to the next level.



Figure 17. The main menu of game

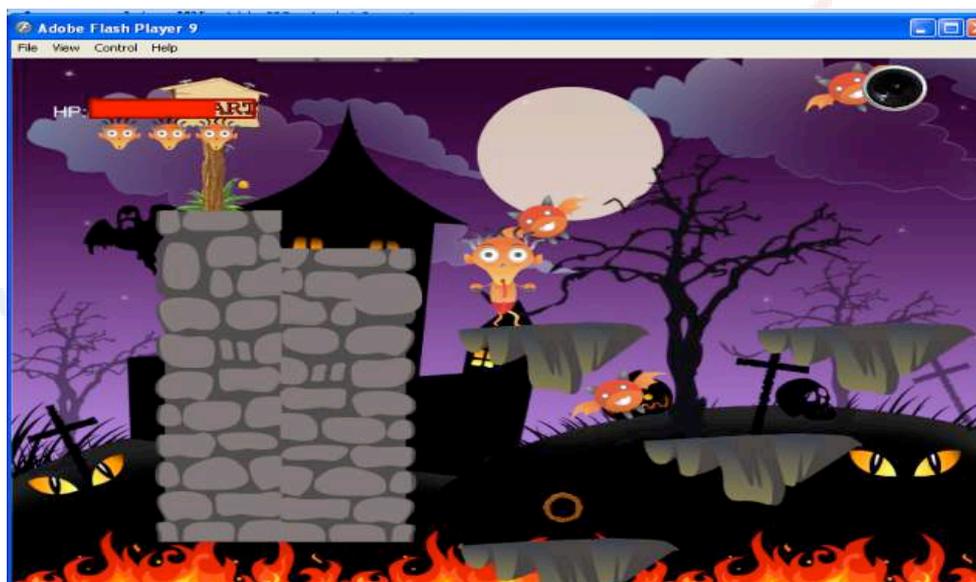


Figure 18. The 'pret' spirit's adventure at the level-1



Figure 19. The 'pret' spirit got knowledge asset at the level-1

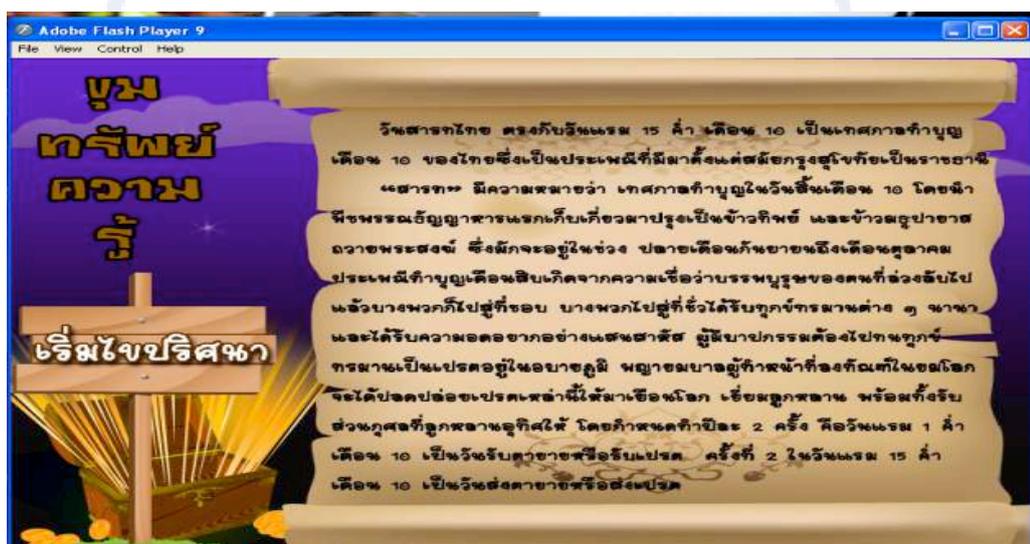


Figure 20. The level-1 knowledge board

6. Evaluation of the Proposed Computer Game

The proposed computer game was evaluated in our laboratory for users' satisfaction in terms of three categories: (1) its component and graphic design, (2) efficiency, and (3) learning-added value. Each category consists of related questions in a given questionnaire. Ten subjects were voluntarily drawn from students at the Information and Communication Technology Program at Prince of Songkla University, Thailand. They were asked to complete the questionnaires after playing the proposed computer game. The overall results of each category are shown in Table 1.

TABLE 1. The results of Evaluation

Evaluation Items	AVERAGE	SD
1. Components and graphic design	4.62	2.86
2. Efficiency	4.62	2.86
3. Learning-added value	4.66	2.96
Overall results	4.63	2.89

7. Conclusions

A computer game was developed for cultural learning and promotion. The Thai risk-loss tradition known as the dead ancestor merit-making days called the Thai Sart-day festival was used as a case study for cultural game-based learning. Cultural and knowledge elements as well as entertainment elements were integrated for the game design. This proposed computer game was elementarily evaluated by ten subjects for users' satisfaction in terms of its component and graphic design, efficiency, and learning-added value. The overall result of users' satisfaction was rated as very good quality. In future, this computer game and its evaluation should be redesigned in order to better reflect on learning results in the sense of cultural learning and promotion. It should be applied to schools for cultural learning in classrooms. Moreover, it can be used to promote risk-loss cultures to the new Thai generation.

8. Acknowledgment

We wish to express our sincere thanks to all voluntary students who acted as our subjects in the elementary evaluation of our computer game. We also would like to thank to the committees at Prince of Songkla University (PSU) for their assessment during the PSU innovation contest. This computer game was selected to the second round and is waiting for the final results.

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How to Make Technology Better?

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Abstract

Technological progress and its consequences have strongly changed the way we live. This process have initiated a lot of philosophical and ethical reflections. Many of those reflections show us what is wrong with our attitude towards technology and that there are parts of technological development which lead to ill consequences. My thesis is that a part of a problem with technology is our understanding of it. The better philosophical concept of notion of technology can lead us to finding a way of using technology as a tool for making the world a good place to live. In my paper I present three ways of understanding technology and it's place in society. According to Hans Jonas we should be responsible for future generations and avoid situations, which could be dangerous for them. This embrace taking control over technology and avoiding catastrophes, which could be started by our inventions. Ivan Illich in *Tools for Conviviality* shows that using technologies is leading to such problems as bureaucratization and monopolization of our lives by scientifically justified practices. Kevin Kelly wrote about technology as a part of evolutionary process. He highlights that technology can be seen as a tool to make our development faster. I use those ideas to propose a more diversified concept of technology. I show that we need to provide criteria of good and bad aspects of technology and start to think about different types of technological development – those which we would like to spread and those which we should not let to appear.

Introduction

Technology is ubiquitous in contemporary world. The intended and unintended consequences of it are one of the strongest forces shaping our lives. Even if there were people who would like to completely abstain from fruits of technological development, they would be burdened with the changes of biosphere, which have been made with use of technology. We employ technological devices to (naming only a few things): prepare food, move ourselves and products, create and benefit from culture, make clothes, communicate, write papers like this one etc. For example, in order to get to the conference I need to use internet to find information about it. After that I apply to attend, again using the web. I make the reservation for flight, hotel etc. I read books on Kindle and laptop to prepare my presentation. I use plane, train, subway to travel to the place where conference is taking place. This list could be much longer. Consequently, it is not surprising that technology have triggered a lot of discussions, as well as philosophical and ethical reflections.

Perhaps because it is easier to see what is wrong, evil and causes sufferings, a lot of thinkers concentrate on negative aspects and problems, which have been initiated by technology. From the other side, perhaps in opposition to the former, we can find utopians, eulogists of enlightenment and progress, in whose writings we will find apologies of technology and hopes for better future where technology will be a force enabling us to organize a new better world. Many authors would disagree with such simplyfing dichotomy and would say that they aren't on the one or the other side of barricade and they try to describe the phenomenon of technology in the aloof manner. For example Kevin Kelly would probably admit his overall positive attitude to technology, but would not agree to lable himself as a technological enthusiasts, who is unable to see technology as a diversified phenomenon. Similarly, despite writing about the daneger and issues evoked by technology, Hans Jonas at the same time underlines that he is not a fierce critic of technology and that he is able to see the positive side of it. The feature which joins both above-mentioned thinkers is an attempt to find a way to cope with technology as a whole, to work out statements and rules, which could be applied to our way of development and enable us to guarantee technology a right place in a society. I am afraid that such approach itself is a part of our problems. The omnipresent character of technology creates the world in which almost everything we do is connected with it. In this case, the term describing so many aspects of our lives needs divisions, which will enable us to have technologies in assorted categories, for example – forbidden technologies, raising risks technologies, acceptable on a very small scale technologies, useful even in mass adoption technologies and so on. Thanks to such practice we would be better prepared to discuss resolutions, budgets, processes of decision-making and could more consciously decide whether to engage for or against any given technology. In other words I indicate some aspects of concept of technology, which would provide us with better tools to discuss about a very important factor influencing the world in which we live.

In this paper I analyze some aspects of conceptual work of Hans Jonas, Ivan Illich and Kevin Kelly. On example of writings of those thinkers I show that theorizing about technology should take into account not only what is the meaning of technology and arguments about aiming it in desired direction, but also what will happen if we discover, adopt or reject them. I will argue that we should decide about it on a social level.

Admirers and questioners of technological development

We need to improve apprehension of notion of technology and at least try to avoid shortcomings of enthusiastic and skeptic attitudes towards technology. The enthusiastic attitude is dangerous, because it: makes harder to criticize some chosen research programmes, disables discussions about bans or moratoriums on some of inquiries and experiments, undervalues social forces engaged in scientific and technological development (for example biases in favor or against financing different types of research); takes away responsibility from scientists, experimenters and inventors for effects of their work. The skeptic attitude is likely to be named as romantic, unrealistic and could force us into solutions, which hold back improvements, bound us to disadvantages and flaws of currently used technologies. If we would be able to avoid the considered division, the production of identities and camps would be harder, but we could make obsolete the opposition of technophobia and technophilia. In this manner we would be able to improve discussions about the paths and directions of technological development.

Human vocation

In my opinion, the differences between mentioned thinkers, which I describe below, stem from divergent opinions about human vocation (to avoid the term human nature, which enables us to evade some of controversies connected with this concept). There is a main difference between Ivan Illich, Hans Jonas and Kevin Kelly – they disagree about what should be the primary concern of humanity, and how we should understand our role on earth.

Kevin Kelly states that there are similarities between the evolutionary process and the patterns in technological development. According to him we should welcome technology as a new higher level of evolutionary process. It is better because it lets information to proceed in a much faster and in an effective manner than the way in which it is proceed on the level of DNA. For Kelly the most important task is advancing speed of acquiring new information and making progress in methods of analyzing them. This development will be a way of establishing a new seventh kingdom, after six biological ones, the kingdom of technology. In this way evolution will achieve a next step, which will be more efficient, durable and much more rapid, as well as easier to advance further. According to him, we should be open for new callings and treat technology as a part of our destiny, something that enriches us and is a creative continuation of our deeds. In a way we can say that for Kelly progress of computational abilities is a self-explanatory destination of human acts. In his interpretation, evolution and technology are both heading into the same direction of maximizing choices (cf. Kelly 2010, p. 43-56). From this perspective it is understandable why technology for Kelly is mostly seen as a chance but not as a treat.

Hans Jonas sees calling of humanity in preserving effect of the long process of evolution, which has its crowning achievement in enabling and evolving human species (cf. Jonas 1984, p. 43, 44). In this context technology looms as an ambivalent force. Looking through rose-tinted spectacles we could see in it a tool for helping us in realization of our calling, enabling richer lives of humans, but we should not close our eyes on the dangerous aspects of technological progress. Many possible inventions could change circumstances of human life in a high degree. It could lead to a situation in which community of those before and after such invention would be illusory, for example by providing techniques enabling enhancement in memory, intelligence and lifespan. The other problem with the newest inventions is a potential

endangerment of necessary conditions of human life on Earth. Firstly, by the direct threat to human lives, as for example by nuclear weapon along with chemical weapons. Secondly, by the indirect threat being a result of using some technologies, as with the side effects of burning fossil fuels, which are changing air quality, most probably are changing climate on Earth etc. Stressing such points makes Jonas more critical towards technological progress and enables him to formulate rules which could let us limit it.

According to Ivan Illich the endeavour to reach possibly the most possible egalitarian society and balance in different aspects of life belongs to the most important values which should be realized by us. The first one, egalitarian society, should be promoted to allow as many people as possible to pursue their goals and happiness. The second one, balance, embraces the notion of setting limits for different types of progress in order to counterbalance different types of human activities. In order to do that we need to avoid bureaucratization, culture of experts and unleashing our tools to become force tending to realization of escalated targets. It is possible for us to forget, what is the proper place of such technologies in society and what aims should they realize in the first place. In that way technologies are alienating from their tasks and become forces destructive for equality and equilibrium in a society. The method proposed by Kelly consisting of fixing problems generated by technology by developing even more advanced technology (cf. Kelly 2010, p. 215, 216) according to Illich is inappropriate. In opinion of Illich it will cause more problems in the future, because the logic of technological progress and attitude towards technology will remain unchanged and will generate more difficult and dangerous situations. Again we can see that the view about human calling in general impacts the view about technological development (Illich 1975, p. 11, 12, 50, 52, 92).

As we can see there is a connection between views about the human vocation and the perception of technology. In my opinion such divergence in opinions about desired human undertakings should be acknowledged and taken into account, while discussing craved directions of technological development and not surpassed or treated as something negligible.

Technology and ethics of responsibility

Describing the phenomenon of technology, Hans Jonas spotlighted a question of the growing responsibility of our actions. According to Jonas responsibility should be proportional to growing abilities to change the world. In other words, as we are able to influence the genetic legacy of humanity, develop technologies, which change biosphere and mineral composition of predominant part of the world, we should also take into account what will happen in the future and have in mind that we are perpetrators of these processes (cf. Jonas 1984, p. 21).

There are two main reasons why it is very difficult to take this responsibility. The first is an ethical climate of our times. Jonas writes about axiological vacuum - situation where the world in itself has no ethical value. The goals and senses in the world are limited to those invented and interpreted by humans. Ethics is used only to describe relations between human beings and abstains from evaluation of nature and our actions towards it (cf. Jonas 1984, p. 22-24). There is a threat that ethical neutrality is not ending on nature, but it is also relevant for understanding contemporary attitudes towards ethics. For example, the restrictions on applying ethics to provide validation

in public sphere and refusal of acceptance that values are playing role in scientific research, economics and administration. As in case of making accusations against not value free approaches of ideological character perilous to liberty of seeking the truth.

According to Jonas condition of axiological neutrality of nature is an effect of applying scientific method to every manner of describing the world. Mathematical method of making formulas about relations, complemented with scientific rules of experimentation, turned out to be a sufficient way to find relations between material objects. Success on this field headed whole knowledge in the same direction. Standards and conditions of knowing something resembled those developed in natural sciences, where ethical values were rather hazards than opportunities to full understanding of the world. They were dangerous because they could influence reasoning, disrupt experiment, put subjectivity into process of acquiring objective knowledge. Admiration for ability to put aside ethical values and consecutive accomplishments of science and later on of technological development shifted not only a norm about knowing something, but also main interests of society (cf. Jonas 1984, p. 22-24).

Another explanation of the problematic character of ethical values in contemporary world could stress out that values often vary depending on religion, culture, country, social status etc. Globalization of scientific knowledge and technology goes much faster, than globalization of ethical values. It is not clear if such globalization of ethical values should be desired, because it would probably result in fading away of local cultural differences. People lack consensus about ethical values and find agreement with each other about methods of achieving material goals. To some extent this generates alleged consensus about technological progress and at the same time avoidance of ethical questions as they will provoke controversies.

The second reason, which makes taking responsibility difficult, concerns problems with future events. It is not easy to grasp that our actual practices will shape conditions of living of posterity. Among others because predicting future circumstances is very difficult, sometimes even impossible. Technologies interfere with each other and prophecies to be precise, should take into account those influences prompted by technologies yet to be made. Even if we succeed in doing this and we would make forecast about forthcoming, we will still be only on level of dry knowledge. Motivating ourselves and giving us feelings about this is another matter, which is still more difficult. It would require demonstrating of processes, which exact course can not be known. It would require identifying ourselves with human beings, who are (as for now) just potentialities (cf. Jonas 1984, p. 28-31).

Axiological neutrality and problems with motivating ourselves to act taking into account well being of future generations do not absolve us from responsibility for evading situations which could put safety of future generations and ability to make their own choices at stake. In other words we should not, on any account, develop technologies, start processes, act in a way, which could bring the end of humanity. The end is understood here in three fashions – as a destruction of human beings; as a devastation of requisites of human life on Earth; as changes in genetic, cultural, scientific sphere, which would result in initiating new kind of human beings unable to comprehend our mode of existence, constituting new species. To prevent the danger of realizing any of this scenarios we need to control technological development, to

establish limits on technologies which could result in huge changes of circumstances of our lives and to change our modes of consumption in order to guarantee sustainability of human existence in the future (cf. Jonas 1984, p. 34-38, 188-191) .

Freedom

Another important philosophical category influencing a notion of technology and evaluation of technological progress is freedom. There are some interesting differences between examined thinkers in ways in which they understand it and what aspects of it they stress as the most important.

Kelly defines good as a possibility of making more choices, which according to him is identical with freedom. Assuming this, he makes the statement that the development of technology is good because it allows us to make more choices. In this way it gives us more freedom (cf. Kelly 2010, p. 263) . I am not convinced by this argument. More freedom to choose is not always something good. More and more complicated financial instruments were perhaps something good for a short run for some brokers and bankers, but society as a whole in the long run is worse off because of this options. Another example – inventing weapon of mass destruction possible to installment in every house would make our choices broader, militaristic technology would be more advanced etc. etc., but would we really have more freedom after developing technology which would enable us to do that? I do not say about realizing it practically, because a part of Kelly's reasoning is to let us decide whether to adopt a technology or not. Maybe we should ask this question differently: is freedom really only about making choices? What would be wrong in deciding to avoid this choice and not develop such technology? Would not we call it thinking a step ahead, which permits us to have a better situation in future? I take such extreme case on purpose. I agree it is not a typical one, that it is not resembling typical process of technological progress, but on this example we can see that there are such situations, where providing choices is not a preferred option. If so then we need to divide technologies on such that we want to develop and that will enrich our lives and on such that would give us opportunities, which we do not need, which could be harmful. In other words in my opinion, we need to see the possibility of restricting directions of technological development and see it as an opportunity to provide better future. Of course adversaries could say that restriction of technological development is at the same time restriction of freedom and in that way something bad. I am afraid that conflict of values and understanding of them will appear here and that we will not be able to realize all of them (taking into account variations in understanding them).

It is important to point out that making choices is also seen as an important value by Jonas and Illich, but they define it differently than Kelly. For Jonas it is important not to limit choices possible to make by future generations. We should allow our inheritors to make up their lives according to their will and principles to the greatest possible extent, without delineating directions and priorities of life by developing technologies, which would redefine human life in a meaningful and irreversible way. Limiting choices in technological progress can be seen in this context as an element of providing freedom for future inhabitants of Earth and as a bigger benefit than freedom of scientific inquiry today (cf. Jonas 1984, p. 28). Illich would stress in this context that what may seem an opportunity for making more choices for the whole species not necessarily will have positive consequences for freedom of individuals. Enabling more power and control over the world may be at the same time restrictive for choices

of ways of life and make people subjects of objectives provided by new technologies and it's managers, thus limiting possibilities of self-determination (cf. Illich 1975, p. 37-39).

As an example of problems with judging what is giving us more freedom of choice we could name here the changing genetic code of human species. For instance a procedure enabling us being healthier and live longer. On one side (which I guess would be Kelly's interpretation of such situation) in this manner we are able to maximize choices enabling longer and healthier lives for people subjected to such practice. Next perspective (attributed to Jonas) would consider consequences for future generations, their ability to make free choices, to see their lives as meaningful and human. From yet another perspective (which I ascribe to Illich) we need to ask ourselves a question who will be able to pay for such a treatment? Will it be used as a tool to promote role of genetic experts and divide society on those who can buy it, those who can not and those who sell/manage it? There comes the next question of control, which we would have over this new technique. The main matter for Illich would be enabling people to decide for themselves. This includes avoiding situation in which medical treatment would be prescribed obligatory or would give such a big advantage to those using it, that it would stimulate a huge pressure on those unwilling to adopt it.

Freedom is considered as one of the most important values in democratic societies, but as we can see it is not clear what it means to be free in context of technological development. As I have showed above inspired by Hobbes conception of freedom as liberation from restrictions is too simplistic for our situation in the area of technology. We need to discuss which way will enable the most freedom for the biggest amount of people and accept that conclusions will not be always agreeable to freedom of making new research and providing new inventions.

Technology and convivial life

Ivan Illich draws our attention to problems occurring when technology achieves huge scale. At this point it is often not any longer the mean to which it was invented, but starts to realize its own agenda. As possible dangers, which could occur in technologically advanced societies Illich mentions – mass production, carrying away opportunities for practicing human skills, going forward on higher levels of expertise fragmenting society on experts and non-experts, change speeded up so high that experiences of the past desist from constituting guidelines for present events (cf. Illich 1975, p. 11). Illich describes two directions in which technological development can lead:

The first leads to specialization of functions, institutionalization of values and centralization of power and turns people into the accessories of bureaucracies and machines. The second enlarges the range of each person's competence, control, and initiative, limited only by other individuals' claims to an equal range of power and freedom.“ (Illich 1975, p. 12)

A research concentrated on the goal of technological progress is easily guided into the first path, because it is not against inner logic of this process to support specialization, institutionalization and centralization. In other words if we let technology to be

developed without much public guidance it is quite probable that it will be a tool of enlarging power and influence on the world, but putting aside goals important for better social relations. On account of this observation Illich explains:

Present research is overwhelmingly concentrated in two directions: research and development for breakthroughs to the better production of better wares and general systems analysis concerned with protecting man for further consumption. Future research ought to lead in the opposite direction; let us call it counterfoil direction research. Counterfoil research also has two major tasks: to provide guidelines for detecting the incipient stages of murderous logic in a tool; and to devise tools and tool systems that optimize the balance of life, thereby maximizing liberty for all.“ (Illich 1975, p. 92)

As a good example of problems generated by devices, which achieve huge role in the society and disturb equilibrium is a car. When invented it was a tool for moving fast and freely. Nobody have expected that it will produce traffic jams, fatal accidents, air pollution and contribute to increase of civilization diseases, social exclusion of people without it, social stratification corresponding to how expensive car you own, interests of big firms, negative changes in public space organization and distribution, consumption of energy which could be used to other purposes etc. (cf. Illich 1975, p. 66). To sum up according to Illich technology needs to be guided into the direction of values important for developing better society and should not be let go on its own.

How much humans can decide about technological development?

One of the most important questions related to technology is what are our chances to influence the ways and speed of it's development. It seems that for Kevin Kelly we do not have much choice. He points out that technological discoveries were quite often made simultaneously. From this he draws a conclusion that technium (his term for parts of the world influenced by technology, „self-reinforcing system of creation“ (Kelly 2010, p. 12)) can be described as a force having direction. Even if we can change a track which technological development will follow, the path of technology is still co-determined by former inventions and go towards goals co-determined by evolution and chemical, biological, physical circumstances (cf. Kelly 2010, p. 103-129).

Kelly, Jonas and Illich agree on the existence of force within technology which provides it with it's own objectives (cf. Illich 1975, p. 60-62; Jonas 1984, p. 141; Kelly 2010, p. 15). In other words they agree that technologies will have specific tendencies, which could be hard to override, constraining future choices etc. For Illich and Jonas this is an argument to give more attention, efforts and reflections to provide tools and concepts needed to enable us to have bigger influence on processes of technological development. They object to perceive scientific and technological progress as heading in one direction and as something inevitable.

Summary

In this paper, I have shown different approaches to technology, chances and dangers connected with it. I think that shortcoming characteristic for all this conceptions is lack of vision how to give a choice and connected with it responsibility to people, who are subjects of changes started by technology. In other words after understanding how important and influential technology is we should begin to give the power back

to citizens, whose vote should be taken more into consideration about decisions, which will have direct and cumulative effects over actual and future generations. It would need a lot of effort, changes in attitudes towards decision making, enabling common people to be able again to comprehend at some level what is going on in laboratories and political cabinets. Our educational system should teach children how to make rational choices (Wysmulek 2013, 15.00-16.32) and this should also include preparation how to influence trends and angels of technological development. All these are goals for a long run. In the short run we need to address the problem of hazardous technologies on a level of international treaties. We can see examples of such treatise bringing positive effects – Treaty on the Non-Proliferation of Nuclear Weapons and The Chemical Weapons Convention. We need discussion and provision of treaties which would limit pace of discovering of technologies which would be recognized as too risky and unsafe to develop. As an example of controversial technology, which in my opinion needs such public discussion are AIs able to make their own decision of killing people (Suarez 2013).

After above reflections I guess we should change question from the title of this paper into a few others: how to make technologies better? How to classify them? How to choose among them? How to give citizens occasions to decide about directions of technological developments? How to make science and technology subjected to public discussion, evaluation and decision making process? How to constraint destructive discoveries and let flourish praiseworthy ones?

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Integration of PSO and BP Neural Network for Building the Artillery Ballistic Model

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Abstract

The artillery firing precision plays an important role in the war and it's hard to describe the projectile trajectory in a mathematical model. In this paper, the neural network is used to build the artillery ballistic model for range prediction and Particle Swarm Optimization (PSO) is applied to optimize the initial weight and bias to accelerate the training speed. Besides, some firing data from one middle-caliber artillery are utilized in orthogonal array to reduce the experimental runs. The result shows that the proposed method has the faster training speed and better precision of range prediction than the traditional neural networks and proves to build quickly a suitable artillery ballistic model in less firing data without the complicated mathematical equations.

Keywords: Particle swarm optimization, neural network, orthogonal arrays, ballistic

1. Introduction

The artillery firing precision influences the war result deeply. There are many complicated reasons to influence the projectile trajectory. The projectile weight, ammunition quantity, cannonball shape and so on, are set in the fabrication process and which are the controllable factors. The projectile after leaving the muzzle will be affected by the uncontrollable factors such as initial velocity, air temperature, air pressure, relative humidity, wind velocity, wind direction, coriolis force and so on, but it's very difficult to build the ballistic mathematical model. For many applications, buying the foreign artillery and using the ammunition made by themselves is the tendency but the ammunition is not suitable for the original factory range table in firing. Therefore, some of military researches are focused on building a suitable artillery ballistic model to predict the range precisely and quickly.

It is hard to explain the complicated relation between input and output by a mathematical model for the physical system. The neural network is developed gradually and used extensively without the complex mathematical model, and that combined with design of experiments can not only reduce the experimental runs but also build a model for fitting the true system effectively. Wang et al. proposed the experimental results of orthogonal array (O.A.) to be the training data of neural network for building a model which can make prediction, interpolation, extrapolation and optimization [1]. Chang et al. also suggested the experimental results of orthogonal array to be the training data of neural network to build the back-propagation neural network (BPN) which can simulate the feasible domain for the optimal filter design. The result not only decreased the experimental runs but also gained better results than the common scheme [2]. Besides, the neural network was often combined with Taguchi-design of experiment to decrease the experimental runs and carry out the parameter optimization, experiment validation, analysis of variance and so on [3].

Some studies used PSO to optimize the parameters of BPN to improve the local optimum produced from the application of neural network. The results showed the higher prediction precision and faster convergence speed than traditional BPN [4-6]. PSO and genetic algorithm (GA) to combine with BPN in reservoir parameter dynamic prediction are also proposed. The results indicated that PSO-BP neural network is superior to GA-BP neural network and the traditional neural network [7]. In this study, the artillery ballistic model for range prediction is built by integrating PSO and BPN, where the PSO is utilized to optimize the initial weight and bias of neural work and the orthogonal array is used to reduce the training samples of neural network. The proposed method can accelerate the training speed of neural network and improve the prediction precision.

Nomenclature

t	iteration count of PSO
T_{\max}	the maximal iteration count of PSO
w	inertia weight of PSO
E	error function of neural network
d_k	actual or expected output in the neural network
y_k	output value of output layer neuron in the neural network
y_j	output value of hidden layer neuron in the neural network
w_{ji}	weight of neural network
Δw_{ji}	weight correction of neural network
b_j	bias of neural network
Δb_j	bias correction of neural network
η	learning rate of neural network
r_1, r_2	random numbers between 0 and 1 in PSO
c_1, c_2	learning factors which are positive constants in PSO
c_{1ini}, c_{2ini}	the minimal constants initially in PSO
c_{1end}, c_{2end}	the maximal constants at the end in PSO

2. Particle Swarm Optimization

PSO algorithm means that a group of solutions are produced randomly called population in the beginning and each individual is a particle which replaces a random solution for the optimum of problem. The basic concept is to imitate the social behavior of foraging from a flock of birds [8,9]. Each particle will search continuously and memorize the optimal solution called particle best value (pbest) in problem space during the evolutionary process. Furthermore, the optimal solution between particles during the evolutionary process is considered and called global best value (gbest). When the population is composed of m particles and each particle will search the optimal solution on D dimension space. The location of particle i is denoted $X_i=(x_{i1},x_{i2},\dots,x_{iD})$. and the velocity is denoted by $V_i=(v_{i1},v_{i2},\dots,v_{iD})$, $1 \leq i \leq m$, $1 \leq d \leq D$, and the location of optimal solution is denoted by $P_i=(p_{i1},p_{i2},\dots,p_{iD})$, the location of global optimal solution is denoted by $P_g=(p_{g1},p_{g2},\dots,p_{gD})$. The update location and velocity for each particle during the evolutionary process is as follows:

$$v_{id}(t+1) = wv_{id}(t) + c_1r_1(p_{id}(t) - x_{id}(t)) + c_2r_2(p_{gd}(t) - x_{id}(t)) \quad (1)$$

$$x_{id}(t+1) = x_{id}(t) + v_{id}(t+1) \quad (2)$$

The linear decreasing inertia weight w is also derived from Eberhart and Kennedy in 1998 [10]. The larger w makes the particle owing the large exploration, and the smaller w makes the particle owing the large exploitation. The inertia weight w was usually set to decrease gradually from 0.9 to 0.4 in most literatures. Ratnaweera etc. thought that the local optimum would still produce even if the inertia weigh was used. That's because the learning factors were constants to restrict the algorithm. As a result, the iteration count t is used to change the learning factors dynamically [11]. All the

relative equations are as follows:

$$w = \frac{(w_{ini} - w_{end}) * (T_{max} - t)}{T_{max}} + w_{end} \quad (3)$$

$$c_1 = (c_{1end} - c_{1ini}) \frac{t}{T_{max}} + c_{1ini} \quad (4)$$

$$c_2 = (c_{2end} - c_{2ini}) \frac{t}{T_{max}} + c_{2ini} \quad (5)$$

3. Back-Propagation Neural Network

The basic concept of artificial neural network is to imitate the nervous system of organism. It's composed of numerous nonlinear operational units (nerve cells) and connection between operational units. The neural network can construct the model which can explain the correlation between input and output by the observation data without the mathematical model. The back-propagation network (BPN) is the most popular neural network algorithm. The scheme of BPN is shown in Fig. 1. BPN consists of input, hidden and output layers. The training process of neural network is composed of forward pass, error computation and error back-propagation. In the forward pass, a neuron driven by the input signal produces the output that differs from the actual or desired target output and leads to the error. The gradient steepest descent method is applied to minimize the error function. The error signals are then back propagated through the network from output layer to input layer as a sequence of corrective adjustment called weight modification. The amount of hidden layers, neurons, learning rate and transfer function are modified properly in the training process to minimize the error. The relative mathematical equations are described as follows:

$$y_j^n = f(net_j^n) \quad (6)$$

$$net_j^n = \sum_i w_{ji}^n y_i^{n-1} - b_j^n \quad (7)$$

$$E = \frac{1}{2} \sum_k (d_k - y_k)^2 \quad (8)$$

$$\Delta w_{ji} = -\eta \frac{\partial E}{\partial w_{ji}} \quad (9)$$

$$w_{ji} = w_{ji} + \Delta w_{ji} \quad (10)$$

$$\Delta b_j = -\eta \frac{\partial E}{\partial b_j} \quad (11)$$

$$b_j = b_j + \Delta b_j \quad (12)$$

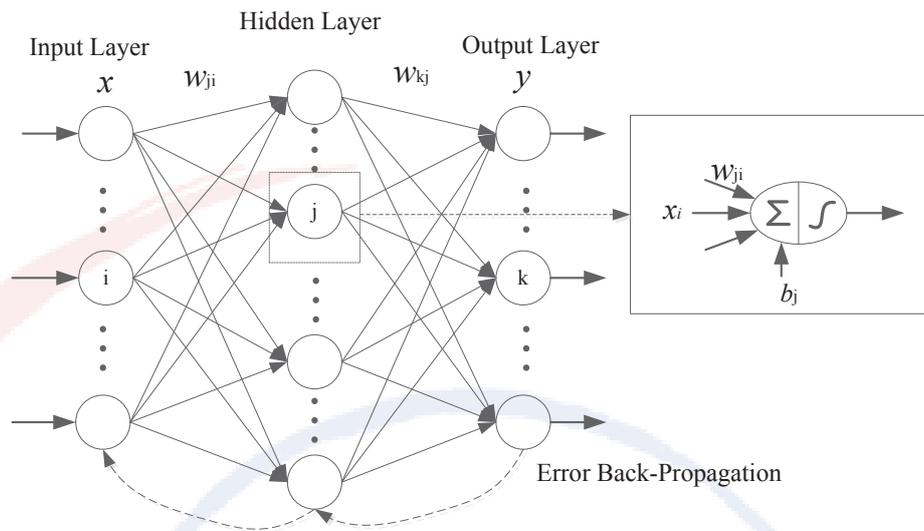


Fig. 1. Back-propagation neural network.

4. Orthogonal Array and Artillery Ballistic Data

The property of orthogonal arrays is to obtain the same effective information as the full factorial experiment, and the experimental runs will be reduced. The type of orthogonal arrays include two-level, three-level and mixed-level and which are usually shown in $L_A(B^C)$. A , B and C represent respectively the number of experimental runs, level and factor. The major purpose of this paper is to build the artillery ballistic model to predict precisely the range. Angle of departure, muzzle velocity, air temperature, air pressure, wind velocity, wind direction and relative humidity are the main factors to influence the artillery range, in which the wind velocity contains both of the following wind and the cross wind, and each of them includes the downwind direction and upwind direction. The downwind direction means the same direction with the motion trajectory of projectile and the upwind direction is on the contrary. Because the correlation between the artillery range (output) and the variables mentioned above (input) are very complex, the three-level design are used to each variable except that the wind direction is in two-level design.

In this paper, the firing data come from one middle-caliber artillery. Table 1 shows the data scope and $L_{36}(2^2 \times 3^7)$ orthogonal array is utilized to investigate the prediction effectiveness of ballistic model built by the PSO-BP neural network (Table 2).

Table 1. The artillery ballistic data scope

Variables	Minimum	Maximum
Angle of departure (°)	1	30
Muzzle velocity (m/s)	1000	1010
Air temperature (oC)	5	39
Relative humidity (%)	50%	100%
Air pressure (mb)	1002	1019
Wind velocity (m/s)	1.7	6.3
Wind direction	Downwind	Upwind

Note:

1. The standard muzzle velocity is 1005(m/s) and the data range is defined by the fabrication deviation of ammunition.
2. The range of atmosphere data is defined by Taiwan climate condition.

Table 2. $L_{36}(2^2 \times 3^7)$

Experimental Runs	Variables Column								
	A	B	C	D	E	F	G	H	I
1	1	1	1	1	1	1	1	1	1
2	1	1	2	2	2	2	2	2	2
3	1	1	3	3	3	3	3	3	3
4	1	1	1	1	1	1	2	2	2
5	1	1	2	2	2	2	3	3	3
6	1	1	3	3	3	3	1	1	1
7	1	1	1	1	2	3	1	2	3
8	1	1	2	2	3	1	2	3	1
9	1	1	3	3	1	2	3	1	2
10	1	2	1	1	3	2	1	3	2
11	1	2	2	2	1	3	2	1	3
12	1	2	3	3	2	1	3	2	1
13	1	2	1	2	3	1	3	2	1
14	1	2	2	3	1	2	1	3	2
15	1	2	3	1	2	3	2	1	3
16	1	2	1	2	3	2	1	1	3
17	1	2	2	3	1	3	2	2	1
18	1	2	3	1	2	1	3	3	2
19	2	1	1	2	1	3	3	3	1
20	2	1	2	3	2	1	1	1	2
21	2	1	3	1	3	2	2	2	3
22	2	1	1	2	2	3	3	1	2
23	2	1	2	3	3	1	1	2	3
24	2	1	3	1	1	2	2	3	1
25	2	1	1	3	2	1	2	3	3
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31	2	2	1	3	3	3	2	3	2
32	2	2	2	1	1	1	3	1	3
33	2	2	3	2	2	2	1	2	1
34	2	2	1	3	1	2	3	2	3
35	2	2	2	1	2	3	1	3	1
36	2	2	3	2	3	1	2	1	2

5. Integration of Particle Swarm Optimization and Back-Propagation Neural Network

In this paper, PSO is utilized to search the optimal initial weight and bias of neural network to accelerate the training speed, and the gradient steepest descent method of BPN is applied to modify gradually the weight and bias for the minimization of error function. There are two key points about the optimization of neural network by PSO: Firstly, the particle's dimensions must be transferred into the initial weight and bias of neural network and each size is equal to the numbers of initial weight and bias. Secondly, we define the fitness function to compute the fitness of particle. The operation steps are explained as follows:

Step 1: Normalize the input data.

The 36 artillery ballistic data in orthogonal array are used to train the neural network, and we choose additionally 10 data for verification and evaluation. Because of the physical significance and dimensions of data are different and unsuitable for training the neural network. The normalization is used to transform these data into [0,1] domain and the equation is as follows:

$$X_{new} = \frac{X_{old} - X_{min}}{X_{max} - X_{min}} \times (D_{max} - D_{min}) + D_{min}$$

(13)

Where X_{old} , X_{new} are respectively the data of original and normalization, X_{min} , X_{max} are respectively the original data of minimum and maximum, D_{min} , D_{max} are respectively the minimum and maximum in [0,1] domain.

Step 2: Set the neural network parameters.

The hidden layers, neurons, learning rate and transfer function influence the neural network deeply such as the training speed and convergence condition. Try and error method and empirical formula from literatures are utilized to determine these parameters of neural network as follows: hidden layers: 2; hidden layer neurons: (7, 4); learning rate: 0.1; transfer function: sigmoid function. Mean absolute error (MAE) is used as the cost function and the goal error is 0.007.

Step 3: Initialize PSO parameters.

The location and velocity of D-dimensions particle are random in [0, 1] domain initially. The D-dimensions particle is transferred into the initial weight and bias of neural network and each size is equal to the numbers of initial weight and bias. The linear decreasing inertia weight is used and decreases gradually from 0.9 to 0.4 (Eq. 3). The learning factors are changed dynamically (Eq.4, 5) and c_{1ini} , c_{2ini} are 0.1, 0.6, c_{1end} , c_{2end} are 0.5, 1. Population size: 100; Iteration: 200.

Step 4: Input the training data.

Step 5: Compute the output value of hidden layers and output layer.

Step 6: Compute the fitness of particle and the fitness function is defined as mean absolute error.

$$F(i) = \frac{\sum_{q=1}^Q |(d_q - y_q)|}{Q}$$

(14)

d_q is the actual value, y_q is the output value of output layer, Q is the number of training samples.

Step 7: Compute and update the history optimal location of each particle, P_i which has the minimal fitness during the evolutionary process, and if the particle's fitness is the minimum compared with all, its location will be the global optimal location, P_g .

Step 8: Update the velocity and location.

Step 9: Repeat steps from step 4 to step 8 until the maximum iteration is satisfied.

Step 10: Input the optimal initial weight and bias obtained by PSO into the neural network for training.

Fig. 2 is the flow chart for the building of artillery ballistic model which combines the neural network with the orthogonal array. First of all, the actual range of orthogonal array design chosen outputs, 36D1 obtained from the ballistic data and the orthogonal array design chosen inputs, 36X1 are both normalized to train the BPN. The weight and bias will be modified gradually by error back-propagation if the value of cost function doesn't satisfy the goal error. Finally, we choose 10 ballistic data randomly to confirm the objectivity and efficiency of trained BPN besides the original 36 training ballistic data. The range outputs of trained BPN are denormalized and compared with the actual range that will produce an error. Under the premise that overfitting is avoided, the goal error will be modified properly according to the result to approach the purpose of error minimum and that the BPN range prediction will be close to the true range. As mentioned above, the neural network ballistic model is completed.

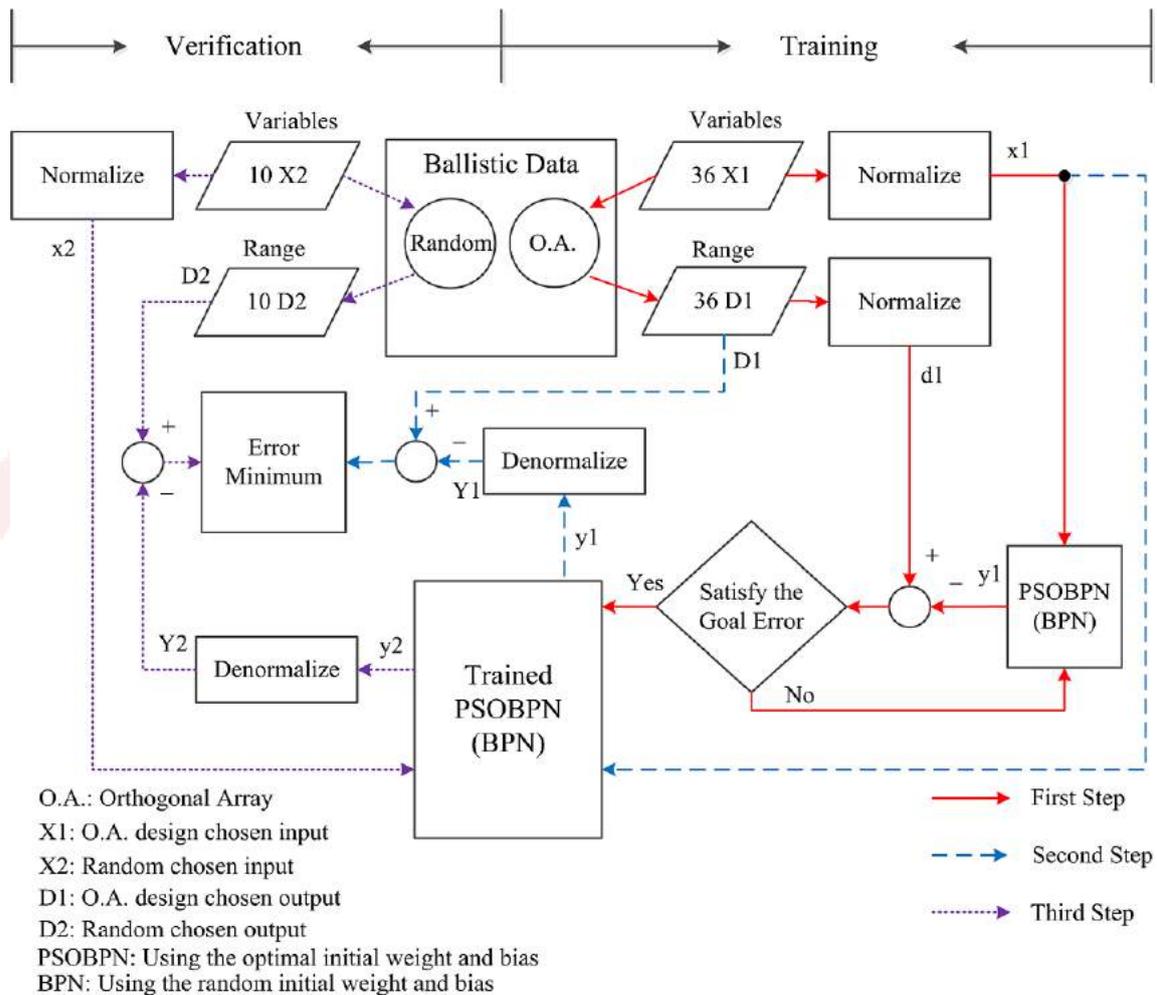


Fig. 2. Flow chart for the building of artillery ballistic model

6. Simulation Results

The 10 ballistic data chosen randomly are used to evaluate the performance of PSO-BP neural network combined with the orthogonal array (O.A. PSOBN). Furthermore, there are two model built by the traditional BPN theory and which are utilized to compare with the proposed method. Non-orthogonal array BPN (Non-O.A. BPN): The ballistic model of BPN is built by 36 data without using the orthogonal array and these training data are widespread in the data scope to increase the precision of BPN. Orthogonal array BPN (O.A. BPN): The ballistic model of BPN is built by 36 data in orthogonal array. It's utilized to understand the performance of prediction precision when the neural network combines with the orthogonal array in less training samples.

Fig. 3-4 is the comparison of training time and prediction error for three neural network ballistic models. Each model is repeated for five times and the mean absolute percentage error (MAPE) between prediction and true is the index to evaluate the precision of neural network ballistic model. From the figure, Non-O.A. BPN needs the longest training time and obtains the worst prediction precision. These conditions will be improved greatly when the neural network combines with the orthogonal array shown in O.A BPN and O.A. PSOBN. In addition, the training speed of neural network will be accelerated obviously when the initial weight and bias is optimized by PSO. Fig. 5 is the range prediction error of three different BPN models, in which the prediction value of range is the mean of five repeats. For the same goal error in

the network training, the BPN model without combining with the orthogonal array has the worst prediction precision than O.A. BPN and O.A. PSOBPN. As a result, PSO-BP neural network which combines with the orthogonal array has the best performance for the artillery range prediction.

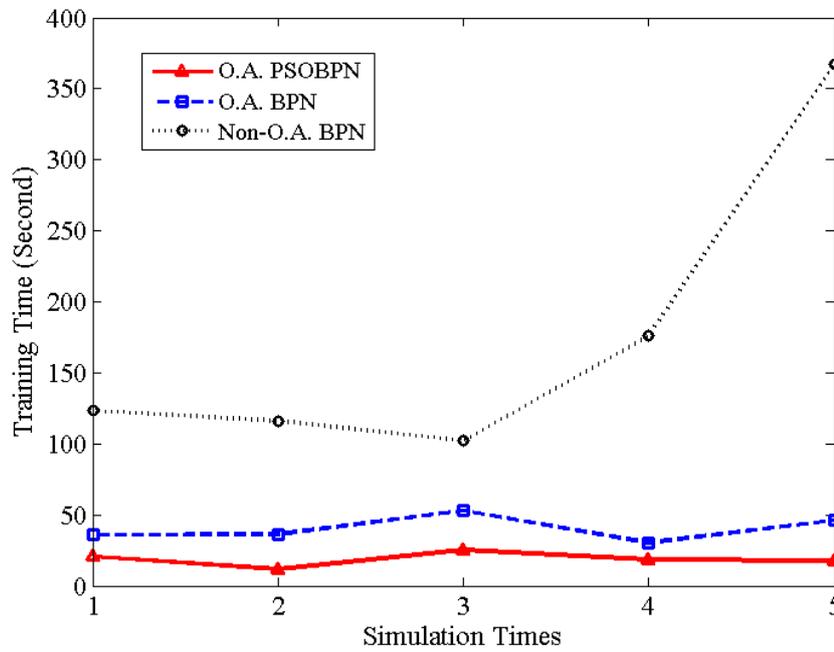


Fig. 3. Training time of three different BPN models

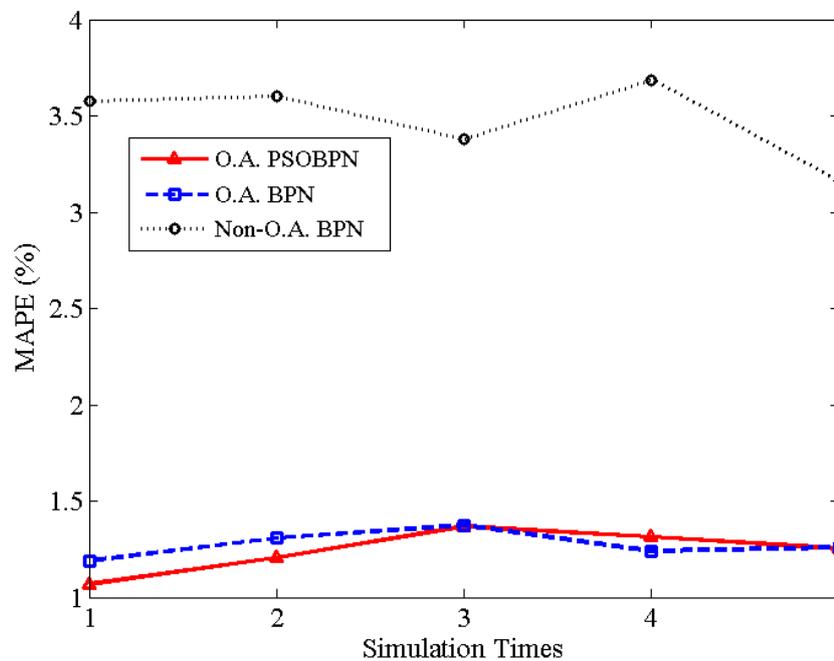


Fig. 4. Mean absolute percentage error of three different BPN models

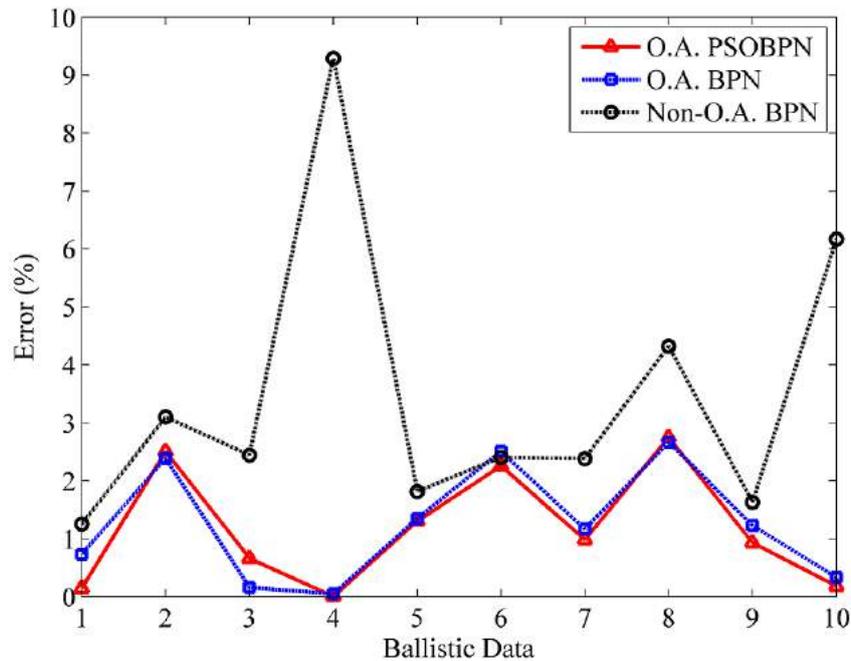


Fig. 5. Range error of three different BPN models

7. Conclusion

The firepower of artillery is one of main factors to decide the war result. The promotion of firing precision and accuracy for the artillery is always the research goal of nation defense industry. In this study, the intelligent artillery ballistic model based on PSO-BP neural network and orthogonal array is utilized for range prediction. The orthogonal array can improve both of the prediction precision and training time of neural network and the application of PSO can accelerate the training speed obviously. The proposed method has the better performance than the traditional BPN theory and which build the artillery ballistic model in less experimental data without the complicated mathematical model. The result can not only reduce the research cost and time but also suggest a method to build the artillery ballistic model for range prediction.

Acknowledgement

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Mining Facebook in Identifying Software Engineering Students' Personality and Job Matching

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Abstract

Getting the job that suits our capability is a dream of each job seeker. But in real life, job seekers especially the fresh graduates may end up choosing a wrong career path because of ignorance of their own strength and weaknesses and improper guidance. When this happens, they tend to perform poorly in the job market. Understanding a person's personality helps in placing them in the right jobs and organization. In our research, we would like to focus on how Facebook can be used as a platform to judge the personality of a student and how it helps in matching the right job. The scope of this research is limited to software engineering students. A system was developed and is expected to help these students to be aware of their own personality based on their user-generated data from Facebook wall. The Big Five Personality Model has been used in gauging the personality of each individual. Besides that, the system also suggests the most suitable software engineering jobs that fit the students based on their gauged personality. This will somehow help them not to take up the wrong career.

Keywords: personality; job match; Facebook; Big Five Personality Model

I. INTRODUCTION

The rapid development of modern ICT in the past few years has resulted in an increasing number of people turning to the web for job seeking and career development. Many researches and systems have been developed in recruiting people for jobs by utilizing the information which is available on World Wide Web. Studies by Richard Doherty (2010) shows that the amount of personal data available in social media is more accurate compared to the CV that has been produced by the applicants. This indicates that social media has successfully created worthy data that can be looked upon and these data basically adds more value to many organization's recruitment activities. According to JobVite social recruitment survey conducted in San Francisco, about 80% of companies uses social media data for their recruitment purposes and from this 80%, 95% uses LinkedIn(JobVite Social Recruitment Survey).

On the other hand, the trend of using facebook for career purpose has increased due to the wide popularization of the media. Although it is usually used for leisure but the user generated materials that it contain becomes increasingly relevant to their own professional lives. Burhanna et al.(2009) had stated that Facebook has become a compulsory activity for the students and it has become a part of students' campus life. This finding was further strengthen by socialbakers.com which statistics has proven that majority of Malaysian facebook users lies between the age of 18-24. Meanwhile, Kohnle(2009) has also revealed that even recent graduates employs social media during their job search. The wide usage of this social media among students has created wide range of user generated information which can be very useful if utilized properly in preparing students for job market .

Past research has shown that there is mismatch between our local graduates' capabilities with the industry's needs (Gurvinder Kaur & Sharan Kaur, 2008). There are many reasons which have been stated for this mismatch. One of the main reason is graduates are lacking in the relevant skills to fit the job scope (Shah 2008). When this matter is analyzed further, it indicates that they are unaware of the required skills(Asmak Shafie & Nayan, 2010). Therefore making them to be left behind in the race of job hunting. Jobseekers especially the fresh graduates may end up jobless or with jobs that do not fit their strengths and capability. When this happens, they tend to perform poorly in job market, blame the higher education syllabus which failed to cater for their job needs, etc. All these problems triggered mainly because the students themselves failed to realize their own capability and ignore the degree of suitability of job with their personality.

There are researchers which had been conducted in the past on gauging the personality of the users of facebook(Sumner, 2011; Bachrach et al., 2012; Golbeck et al., 2011). Sodiya et al.(2007) had matched the types of personality traits with Software Engineering Jobs based on Big Five Personality Model. This research work has gone a step ahead in integrating these independent works by linking the personality that has been derived from Facebook to the suitable software engineering jobs. Around 30 students had tested the system and retrieved their personality information from facebook wall. This information are then analyzed and matched with the suitable software engineering jobs. The system had enabled them to identify their strengths and weaknesses and help them to match their personality with a suitable software engineering jobs.

II. RELATED WORKS

Popular social media platforms include Facebook, Twitter, Blogspot, LinkedIn and Google Plus. Due to the popularity of social media in recent years, there is a lot of information shared in profile and this information somehow reflects the personality of profile's owner (Bachrach et al. 2012). Several authors had reviewed the relationship between social media and personality. Golbeck et al.(2011) collected most recent 2,000 tweets from users. From Twitter account, statistics such as number of followers, number of hashtags, and words per tweet had been collected to find out the correlation between personality and twitter behaviour.

Besides Twitter, Facebook also has become one of the sources in which these types of personal information have been shared in an open manner. This information could be about friends, events, photos, groups or wall posts. Past research by Golbeck et. al(2011) had shown that there exist correlations between Facebook activity and personality traits. They had predicted user's personality through publicly accessible information in user's profile such as personal info, language features, personal info, activities and preferences. Another study by Sumner et. al(2011) had explored the extent to which it is possible to determine personality traits and privacy concerns based on Facebook usage.

Big Five Model has been chosen to predict user's personality in this study since it is one of the most widespread and generally accepted models of personality (Wehri 2008). Big Five Personality factors (OCEAN) include **O**penness to experience, **C**onscientiousness, **E**xtraversion, **A**greeableness, and **N**euroticism. Figure 1 shows the Big Five Model with five factors as stated by Golbeck, Robles & Turner (2011).

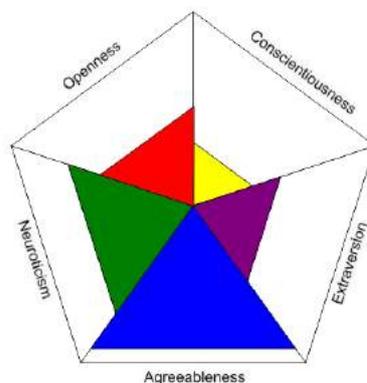


Figure 1: Big Five Model

Openness to experience is the first factor of Big Five Personality factors. People who are high in openness to experience tend to be curious, creative and open to new ideas (Bachrach et al. 2012). They are interested in trying new things and highly motivated to learn new skills. The second factor, conscientiousness measures the degree of a person in organized, systematic, and dependable. Conscientiousness persons are enjoying in planning and seeking for achievement and goals in their life (Bachrach et al. 2012). Extrovert is friendly people who desires excitement and take risks, whereas the introvert is quiet, reflective person who prefers his or her own company and does not enjoy large social events. Agreeableness, as the forth factor, reflects individual differences in concern with cooperation and social harmony. Lastly, neuroticism refers to the degree to which a person is anxious, temperamental, and moody

(Golbeck et al. 2011). It is found that people who are belonging to neuroticism tend to be stress, nervous and unhappy in their life (Bachrach et al. 2012).

From a recent study by Bachrach et al.(2012), it shows that there are relationship between Facebook profile features and Big Five Model. According to Bachrach et al.(2012), openness to experience is in a positive relationship with the number of status updates, photos, groups, and “likes”. This can be explained by those who like to share comments with their friends and enjoy seeking new things. Conscientiousness is found to be negatively related with number of friends, likes and group membership. Those who score high on conscientiousness spent less time on Facebook, had fewer Facebook friends, belonged to fewer groups and posted fewer photos to Facebook than those who are score low on conscientiousness. Those high in extroversion were correlated with a large number of self-reported Facebook behaviour. They tend to interact more with other users using Facebook groups, which allow exchange of information and interaction with a wider set of people. On the other hand, agreeableness is positively correlated with number of friends, groups, and “likes”. Neuroticism is reported to be positively correlated with number of Facebook likes.

III. MINING FACEBOOK

Trend in using social media for job search have increased since the popularization of Facebook and other social media. Study by Sodiya et al (2007) had looked at the assessment of personality traits in Software Engineering jobs. In their research, they had found the relationship between different Software Engineering jobs and six personality factors. Instead of using only Big Five Model, this study consists of another personality factor which is Cognitive Ability. We have extended their research by linking the Big Five Model with Facebook. The conceptual model of job matching by using user generated data from Facebook is shown in Figure 2.

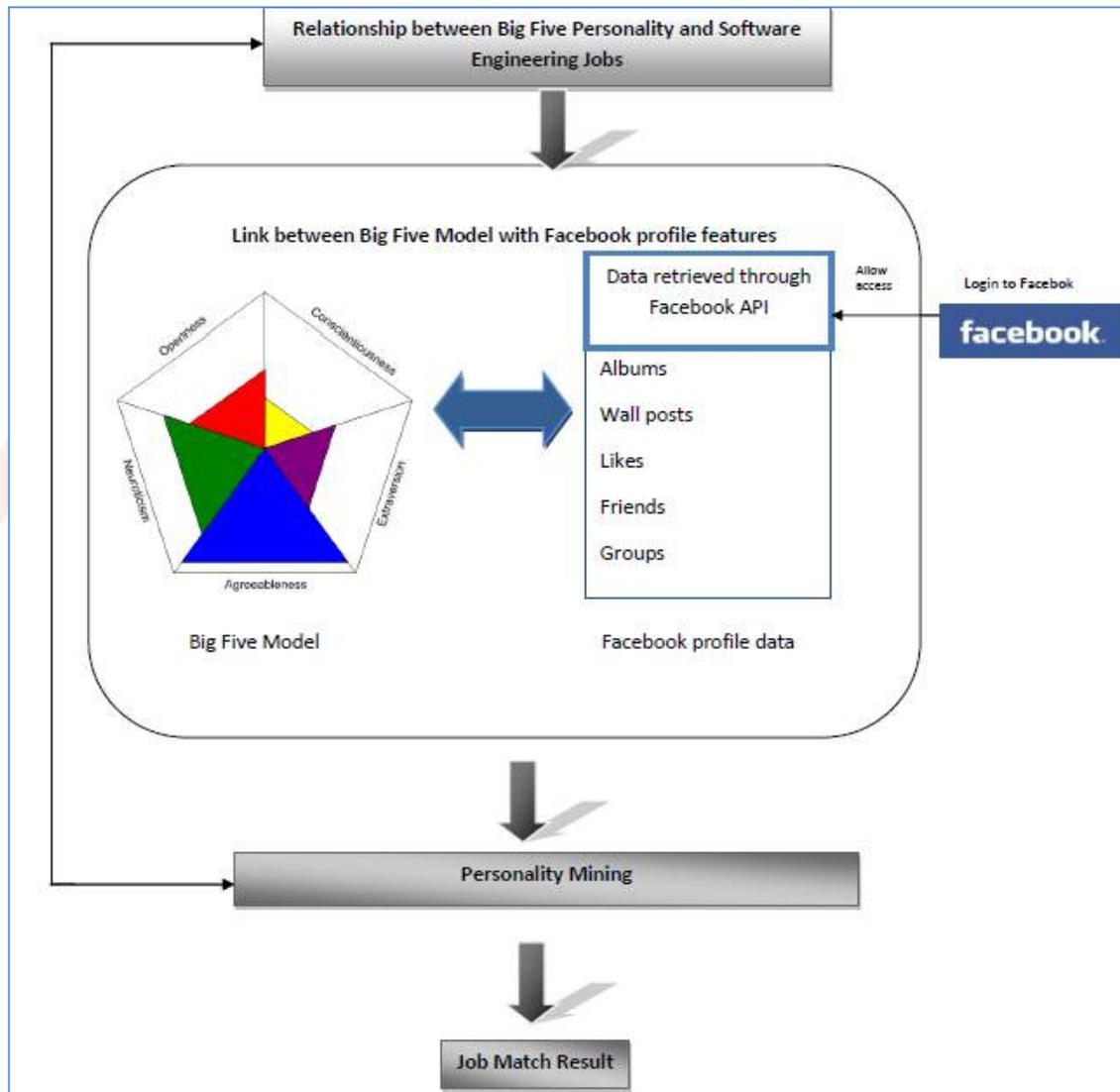


Figure 2: Conceptual model of job matching by using user generated data from Facebook

The conceptual model of job matching by using user generated data from Facebook describes the overall process of job matching in our research. The job matching process begins by utilizing the studies which was conducted earlier by Sodiya et al.(2007) between Big Five personality and software engineering jobs. It is then followed by mapping between the Big Five Model with Facebook profile features. In this study, we are focusing on the main Facebook profile features such as albums, wall posts, likes, friends and groups. A Facebook application named “Job Match” was built to retrieve the participant's Facebook profile data. Users will be able to view the calculated Facebook Personality and Job Match result based on the relationship between Big Five personality and software engineering jobs as shown in Table 1.

Relationship between Big Five Personality and Software Engineering Jobs

To predict a user’s Facebook personality, we have utilized the relationship between Big Five Personality and Software Engineering Jobs (Sodiya et al.,2007). The table of relationship between Big Five Personality and Software Engineering Jobs is shown in Table 1.

Table 1: Relationship between Big Five Personality and Software Engineering Jobs

Big Five Personality	Low	Medium	High
Openness to Experience	E2,E3,E4	E1,E6	E5
Conscientiousness		E1,E4,E5	E2,E3,E6
Extroversion	E1,E3,E4,E6	E2,E5	
Agreeableness			E1,E2,E3,E4,E5,E6
Neuroticism	E1,E2,E3,E4,E5,E6		

Note:

- E1: Management Engineers
- E2: Requirement Engineers
- E3: System engineers
- E4: Programmer
- E5: Tester and Implementer
- E6: Evaluator.

From Table 1, each factor in Big Five Personality traits is divided into three different ranges, which is low, medium, and high. For different range of personality, there are different software engineering jobs that suits it. The software engineering jobs represents by E1, E2, E3, E4, E5, and E6. By referring to table 1, we can conclude that those who belongs to group of high in agreeableness and low neuroticism is suitable to all kind of software engineering jobs. Besides that, those who belong to group of low conscientiousness, high extroversion, low or medium agreeableness and medium or high in neuroticism do not suit any kind of jobs. On the other hand, people who are low in openness to experience will be suitable to be requirement engineers, system engineers or programmer. In contrast, those who score high in openness to experience only suitable choose the career as tester and implementer. Management engineers and evaluator fits the people who are medium in openness to experience. Introverts are suitable to jobs such as management engineers, system engineers, programmer or evaluator. People who fall under the group of medium extroversion match the jobs as requirement engineers or tester and implementer. Lastly, high conscientiousness people will suit the job of requirement engineers, system engineers and evaluator the most whereas medium conscientiousness people should chose their career as management engineers, programmer, or tester and implementer.

Mapping Big Five Model with Facebook profile features

In this study, we have mapped each of the Facebook features with Big Five Model. Based on the samples collected, the low range, medium range and high range of each Facebook feature is determined. It is followed by the measurement of respondent's personality based on each Facebook feature. The features that will be discussed in this study are number of albums, number of wall posts, number of likes, number of friends and number of groups. These features show either positive or negative relationship with five personality traits. The relationship between each Facebook features and Big Five Model is shown in Table 2.

Table 2: Relationship between each Facebook Features and Big Five Model

Facebook Features	Openness to experience	Conscientiousness	Extroversion	Agreeableness	Neuroticism
Number of albums			+	+	+
Number of wall posts	+				
Number of likes	+	-		-	+
Number of friends			+	+	-
Number of groups	+	-	+		

The relationship between each Facebook features and Big Five Model is mainly derived from three past study on predicting personality of Facebook users, which is study by Golbeck et. al(2011), study by Sumner et. al(2011) and study by Bachrach et al. (2012). The positive (+) sign indicates positive score feature while negative (-) sign indicates the reverse-score feature. Positive score feature indicates the existence of a positive correlation with Big Five Model while reverse-score feature is negatively correlated with Big Five Model. For example, number of albums is positively related to extroversion, agreeableness and neuroticism. Meanwhile, number of wall posts shows positive relationship with openness to experience. As for number of likes, it shows positive correlation with openness to experience and neuroticism but negative correlated with conscientiousness and agreeableness. Extroversion and agreeableness are positive related with number of friends. However, neuroticism shows a negative relationship with number of friends. It indicates that the highly neuroticism people have fewer friends in Facebook profile. Lastly, number of groups is in positive relationship with openness to experience and extroversion but negative correlated with conscientiousness.

Personality Mining

It is followed by the calculation of Facebook personality after the relationship between each of the Facebook feature and Big Five Model had been checked. A scale score table is created as shown in Table 3.

Table 3: Table shows scores of different range with positive-score feature and negative-score feature

Range	Positive-score feature (+ sign)	Negative-score feature (- sign)
Low	1	3
Medium	2	2
High	3	1

For low range, it will be computed as 1, whereas for medium range, it will be computed as 2 and for high range, it will be compute as 3. For reversed features (with – sign), the computation of marks is reversed, which means low range is 3 and high range is 1. Table 4 shows the sample computation that has been made in computing the score for neuroticism based on Facebook features that have been obtained from a student:

Table 4: Sample Computation for Neuroticism based on Facebook Features

Facebook Features	Neuroticism	Range	Score
Number of albums	+	High	3
Number of wall posts		- (Not related)	-
Number of likes	+	Medium	2
Number of friends	-	Low	3
Number of groups		- (Not related)	-
Total Score			8/9

There are 3 Facebook features that relates to neuroticism, which means total score of all features computed is 9. Then, the range of each Facebook features is determined based on the Table 3. Finally, the total score by adding on all the score of features is computed. The total percentage for the example shown above is 89%. From the total score obtained, it can be concluded that the person falls under the group of high neuroticism. The same process is applied to other four personality traits. After the personality traits are determined for each of the user, mapping of these traits to the job is determined based on Table 1.

Job Match Result

The results of job matching are the best choices of jobs recommended based on the personality traits of each user. Top 3 choices of jobs are recommended as shown in Figure 3. The matched result is computed by using the concept of intersection sets of jobs that relates to the Big Five personality traits.

Job Recommendation:	
First Choice:	Programmer
Second Choice:	System Engineers
Third Choice:	Management Engineers

Figure 3: Sample of User's Job Match Result

IV. CONCLUSION

The developed prototype managed to retrieve the required information and gauged the personality of students based on Big Five Personality Model from user generated data which was extracted from Facebook. Besides that, the prototype also suggested 3 most suitable software engineering jobs that fit the student's personality. This information managed to create some awareness among students on their own personality and the jobs that fits them well. This kind of awareness will be very helpful for them in setting the right path for their future career. For further research, we would like to extend this research beyond software engineering jobs by accommodating other jobs as well.

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Motivation of Extrovert and Introvert Gamer's Using Different Screen Sizes

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Abstract

The use of games as educational activities have been widely discussed and studied, and more recently it has been suggested that the use of handheld game consoles inside classrooms could be beneficial. However, little has been done to study the role of screen sizes when playing educational or positive games in these environments. This study focused upon the influence of screen size when playing educational/positive games on the gamers' behaviour. Thus, being able to conclude which screen size would impact a gamer more effectively when playing an educational game. An ethnographic study and inductive analysis were undertaken to compare two screen sizes (40 inch TV screen playing the Nintendo Wii and 3.12 inch dual screen on the Nintendo DS). The games that were used in the study were the Big Brain Academy™ and Mario Kart™. The results showed a distinct difference in behaviour based on the gamers personalities (Extrovert and Introvert gamers), and the preference of screen size are different for these two type of gamers.

Introduction

Combining games and education has been widely discussed as an option to introduce fun in learning. There are a wide range of games platforms that could be researched that include computer games and video consoles. Common video console choices are the Nintendo Wii, Sony© PlayStation, and Microsoft© Xbox that are usually played on a monitor or television. They can also include portable consoles such as Nintendo Ds and the PlayStation Portables. Studies have been done in learning the potential of using these small screen portable consoles in classroom and for education (Bunce, 2010, Morgan et al., 2007, Shirali-Shahreza, 2008). However, there is little research on the impact of these consoles in term of their screen size to the gamer. This research compared two screen sizes; a 40 inch TV screen playing the Nintendo Wii, and a 3.12 inch dual screen on the Nintendo DS, to find how these two types of game console and screen size impact gamers. The games chosen for the study were the Big Brain Academy™ and Mario Kart™. This paper will begin with a discussion of the literature related to the research, and then it will continue with the research design. The paper continues with a discussion of the results that show that the preferences of screen size are connected to the personality type (extrovert and introvert) of the gamers.

Screen size and Gaming.

Media and sales have promoted the use of big screens in entertainment and gaming to the public, claiming that the bigger the better. However, the popularity of small screen portable gaming devices is also undeniable, in 2012 the sales of Nintendo Ds and the Sony PSP was up to 153 million units and 62.2 million units respectively, worldwide (Nintendo Co., 2013, Inc, 2013). Although research into the screen size of gaming environments is inconsistent, the preference of the screen size may be subject to the social context of the viewing experience. Small screens might be preferable in personal settings whereas large screens may be preferred in a shared public environment (Grabe et al., 1999). Since then, there have been mixed reviews on user experience and their preferences of screen sizes. Larger screen could give the advantage of increasing user productivity, aid user recognition memory, and are preferable in a daily work environment (Czerwinski et al., 2006, Bi and Balakrishnan, 2009). There is also research evidence that for certain tasks there is no advantage in using a large display. Tasks such as reading comprehension do not profit from large displays but users did perform better during spatial orientation tasks or path integration on large displays (Gibbs, 2007, Boeije, 2010).

In the gaming experience, there is varied evidence of the effect of screen size. (Sabri et al., 2007) concluded that using a large high resolution screen (9 monitors, 2400x1800) does enhance gaming experience when playing a real-time strategy game. Some (Laarni et al., 2005) claim that participants experience a higher sense of presence when a game is projected on a large screen but intentional engagement is at the same level when playing with either a PC or a PDA. A quantitative study done by (Hou et al., 2012) comparing a 12.7 inch and an 81 inch display showed that “ *playing in front of a large screen led to a more favourable impression on the game character, a more positive mood and significant higher self-presence*”(p.617).



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Adoption Theories in Enterprise Resource Planning (ERP) of Health Service for the 21st Century

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Abstract

The research aims to synthesize the factors that affects the adoption behaviors of the enterprise resource planning system of Thailand hospitals. The process performed includes analysis of synthetic documents and related research to create an interview tool template to be used in interviewing with experts in hospital. Eight experts who have experience working in a university hospital have been interviewed with Semi-Structured Interview in order to conduct content analysis and define a conceptual framework for examining the adoption behavior of the enterprise resource planning system in Thailand hospitals in the further stage of the research study. The experts used in the examination must be a user of enterprise resource planning systems in hospitals under the Ministry of Education of Thailand. Various theories such as Technology Acceptance Models (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and Institutional Theory were used in the research. The research results show that all factors in Effort Expectancy factors, Performance Expectancy, Facilitating Conditions, Coercive Pressure, Normative Pressure, and Attitude toward using have effects on the acceptance and use of the system.

Keywords: Technology Adoption, Enterprise Resource Planning (ERP)

1) Introduction

From past to present, various information technologies have been developed to facilitate the daily lives of individuals, or increase accuracy and speed of business processes. In the health sector, the Ministry of Health has established a strategic plan (Strategic Plan No. 2) to develop Thailand as a center for international health (A.D. 2553-2557), with the aim to strengthen and increase competitiveness in the health business by focusing on and developing the country health care system to the international standard, both public and private sector (Thailand Medical Hub Ministry of Public Health, 2011). This plan has made Thailand a global leader in health care services and increased growth rate of health service in business sectors. These affect operations within hospital to adopt efficient information technology in its management in order to increase customer satisfactions, employees happiness and differentiation from competitors. It can be seen that information technology is an important variable in the development progress of the businesses. Information Technology refers to the adoption of computer technology and telecommunications knowledge via software tools and equipment for creativity, storage, retrieval, processing, and display the information in various forms to meet the needs of the user in companies, organizations and society through the process of selecting, applying, improving and managing (Chaleysub, 2008; Songkram, N. n.d.; Association for Computing Machinery and IEEE Computer Society, 2008). Information technology in hospitals has been divided into two types of Medical Informatics (Clinical) and Information Management (Administrative). Both forms of information must pass the integration process, instantly updated information and effective data (Accent Software, 2013).

Enterprise Resource Planning is a software system that was developed to improve work connectivity, by collecting and integrating internal and external management of information across an entire organization This increases the exchange flow of information across the enterprise, reduces the response time to customer needs, increases effectiveness in decision making and enhances business competitiveness (Kumar and Hillegersberg, 2000; Moon, 2007; Chang et al, 2008; Kwahk and Ahn 2010; Mueansrichai, 2012). ERP systems can help in various business regardless of business type process speed, company efficiency and effectiveness. Similar to other industries, ERP system grows rapidly in hospital sectors (Accent Software, 2013). However ERP is a large system, consists of several modules, requires huge investment in both time and capital. In the evaluation of incorporating ERP system to help manage the various processes within the hospital, it is interesting to research on the factors that affect the adoption behavioral of ERP in hospital in Thailand.

In general, Technology Adoption is a technology acceptance in a society, through a process of interaction between inventor and users in society, back and forth several times until the acceptance of the technology (Kumanbun, 2009). The benefits of the study on adoption and use of technology is to prepare employees facing the organizational change so that they can learn how to appropriate use the system, to develop a system that works from the start, and can lead to competitive advantage in individual and business which result in better understanding of why the system is used or not (Chang et al, 2008; Silva and Dias, 2007).

2) Objective of Research

The objective of the research study is to investigate the factors affecting the acceptance and use of ERP in Thailand hospitals and to present the study for the development of the factors that affects an acceptance behavioral model on enterprise resource planning system of hospitals in Thailand.

2) Research Methods

The research studies theories and related researches, analyze, and synthesize the factors affecting the adoption behavioral of the ERP system in Thailand hospitals and develop a research tool for interview template used to interview experts who have experience in enterprise resource planning systems in public hospitals under the Ministry of Education. In-depth Interview was conducted to eight experts from mid-April to mid-May 2013.

3) Concepts, theories, and research related

Researches, both locally and abroad, found that this type of technology adoption can be divided into two levels: personal acceptance level (Individual's adoption) such as Diffusion of Innovations (DOI), Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and organization adoption level (Organization's adoption) such as DOI, Technology Organization Environment (TOE Framework), and Institutional Theory.

Theories relevant to the research study include Technology Acceptance Models (TAM), theory of acceptance and use of technology (Unified Theory of Acceptance and Use of Technology: UTAUT) theory, and Institutional theory.

Technology Acceptance Theory was developed by Fred D. Davis in 1989, to explain the acceptance of Information Systems and to predict the acceptance of information technology and its use. TAM provides basic knowledge that the variable influencing Belief, Attitude, and Behavioral Intention to Use has an effect on the Actual System Use. There are two types of beliefs in this part; the perception on the benefits of the system (Perceived Usefulness: PU) refers to the individual's beliefs that the system can improve the performance of his or her and the perception that the system is easy to use (Perceived Ease of Use: PEOU) refers to the individual's beliefs that the system is free of physical and mental efforts. These two factors served as the basis of the attitudes toward using particular system. It determines the behavior intention to use and create the actual usage behavior (Marchewka and Kostiwa 2007; Davis, 1989).

Theory of acceptance and use of technology has been developed by Venkatesh et. al., in 2003. It aims to explain the willingness of users to use the system and usage behavior with four main structures including expectations of the effective performance (Performance Expectancy), expectations for the efforts of system user (Effort Expectancy), Social Influence and Facilitating Conditions. Performance Expectancy, Effort Expectancy and Social Influence are to be the factors that affect the behavior intention. Where as Behavior Intention and Facilitating Conditions are the two factors that affect the behavior of the user (Usage Behavior). In addition, secondary factors that affect to the primary factors were gender, age, experience and volunrariness in using the system. (Venkatesh et al, 2003; Williams et al, 2011).

Institutional Theory is the theory that William Richard Scott developed in 2008, which consists of three components: rules (Normative Element), cultural knowledge and understanding (Cultural-Cognitive Element), and regulations (Regulative Element). Normative Element is conducted through social expectations and obligations. The Cultural-Cognitive Element is conducted through the activities and resources that provide stability to the employees. Regulative Element is conducted through the mechanics, rules and regulations of the organization. This is consistent with the concept of DiMaggio and Powell in 1983 that discusses the three types of institutional pressure which consist of the pressure caused by the rules (Normative Pressures), pressure caused by emulating (Mimetic Pressures) and the pressure caused by the oppressed (Coercive Pressures). These three pressures are the essential part of the Institutions Theory that affects the adoption of new technologies in both enterprise and individual level (Scott, 2008; DiMaggio and Powell, 1983; Hoerndlein et al., 2012).

4) Results and Discussion

Three theories on technology acceptance (TAM), the theory of acceptance and use of technology (UTAUT) and Institutional Theory are used for the research conceptual framework as follows:

Effort Expectancy was found on respondents from all eight experts. All indicated that the ease of use affects the acceptance of ERP system in the hospital. An ERP system can cause frustration to user in the initial stages. It is a complex system that links together several modules. Each process in a module can always affect other related modules. The fifth interviewee said, "At the beginning of the ERP system employment, it will be more difficult to use ERP system than the old system. But as the result in the end, we can get more detail information when browsing for information or report". The second interviewee said, "User should understand various work processes to make working with ERP system simpler." The eight interviewee said, "talking about the convenience of the system, as earlier survey, user starts using the system with difficulty and dislikes the system, but after using the system for some time user will accept and satisfy with the system. This might be for its clear procedures and standard process." This finding is consistent with the results of the interviews on UTAUT theory which is the basis of this research. The expectations factor on the user efforts toward the system is the comfort level involved in the use can be considered from three aspects of Perceived Ease of Use, Complexity and Ease of Use. This is consistent with the research of Bandyopadhyay and Barnes (2012) and the research of Gumussoy et al (2007) which found that this factor affects the acceptance of the system significantly. In addition, research of Gumussoy et al (2007) also found that Perceived Ease of Use can result in positive Perceived usefulness. Hence, to learn system in the beginning user must put effort in learning the various processes of the system and understanding the business processes in each module. If one can deeply understand the process of the system, he will be able to comfortably and quickly work through ERP system. Even though the system is complex at the initial state, most users satisfy with ERP system in hospitals because of the better results in the performance expectations.

Performance Expectancy found that ERP systems can increase internal work output and individual work performance. It is also suitable to use with the original work model which will result in a reducing work time spent and increase report clarity and accuracy. The fourth interviewee said, "This system can help in historical data, preparation of reports with error free data, and shorten work time because of the

systematic process." The seventh interviewee said, "ERP systems can improve work performance. In the old days, the system is available in the Manual practice. In order to make a report to the management, we recorded data in Excel manually. This is error prone and time consuming, unlike ERP systems which can produce report automatically." This is consistent with the research of Venkatesh et. al. (2003) and Marchewka & Kostiwa (2007) which says that the Performance expectancy is a user's believe level of a better performance when using the system. The research of Gumussoy et al. (2007) said that the Perceived Usefulness has a positive impact on the intention to use ERP systems. The issue of motivation, which plays a part in determining the expected performance of the UTAUT, found that if the ERP user is in same workplace and position he will not receive extra compensation or salary adjustments but what get more trust of his manager. In case of relocating or repositioning, the ERP user will have a better opportunity than those who have never worked in the ERP system before. Even user who only uses the system for a short period confirmed impact factor of Performance Expectancy. This results in user expectation for better incentive after using ERP system. This is consistent with Motivational Model which says that the motivation to the worker who can use the ERP system will get better things than those who cannot.

Facilitating Conditions found that trainings and operation manuals ownership prior to the use of ERP system are facility to worker that has huge effect on the acceptance and use of ERP system. In Thailand public hospitals, the public relations can help all those involved to understand the changes within the organization. This effort can result in the user attitude towards learning systems in the long term. Channels of discussion and quality equipment will foster the acceptance and use of the system. The eighth interviewee said, "The system setup procedure is very important. The procedure must include providing information, communicating, intensive training, clear communication manual and testing the system before actual use. Consultants and users must ensure that the organization has tested every situation that may arise on the job to be able to solve all problems of ERP systems, so that at the time of actual operation, user will enjoy using ERP." This is consistent with the research of Fillion et al (2012) which found that facilities are factors that have a significant impact on adoption of the system.

Social Influence found that those who have the highest influence on the acceptance behavior of the ERP system in Thailand hospitals are the hospital chief executives because they set the policy for the system. This is consistent with the research of Koukis et al. (2009) which found that the support from Top management affects ERP system adoption in hospitals significantly, and consultant has important role in assisting practitioners in real situations. As for the image of the End User within the organization, there are only four interviewees agreed with the image observation. The other interviewees, who agreed with the image comment, think that people around him will view him as an intelligent expert if he is able to do the job. The second interviewee who does not agree with the image observation said, "I don't think that it promotes a positive image to the user because people who understand the change will not have any opinions but people who do not understand or do not like computers or is not able to work through the system will not use the system. This will cause inequality in work load. The worker who can use the system will have more work load than the one who cannot." The issue of the image of a person or organization that uses that system may or may not affect the acceptance and need to be proved in the next step.

Institutional Pressures found that the pressure caused by need to be accepted by others (Normative Pressures). All interviewees said that this part can affect the acceptance of the system because the characteristic of the system that interconnects many modules. Hence, there should be certain rules as a standard in each step of the process. The fourth interviewee said, "The rules and requirements reflect on the outcome. Our hospital is a government agency, so the rules are most likely accepted by people." The sixth interviewee said, "There is an effect on the acceptance, for example, when request information between agencies, we must have Appeal Form as a proof for monitoring and investigation process." The eighth interviewee, said, "This system has made the hospital a more standardized and we can say that we have a system that can monitor, follow up, reduce tricky or corruption activity." This is consistent with the research of Koukis et al. (2009) which said that the nature of ERP systems have been used mainly in response to the customer pressure to work quickly with accuracy and often faced with pressure from regulations such as communication between the group, meeting which is mostly unavoidable. But there are seven interviewees agreed with Coercive Pressures which come from legal mandates or influence from those associated with the system. The fourth interviewee said that "We take care of the debt issue. The information our customer requested must be delivered on time. I think the pressure has the effect." There is one interviewee who does not agree, the eighth interviewee, said "I'm not sure, but think not. I've talked to my vendors. Some said that there is some change; he notice the shorter waiting time. It's faster, but some vendor complained of the slowness and I was not sure if the system caused the problem, or the problem caused by the employee's process itself." The researcher views that the factors have effect on the adoption system because the people who involved with the system always want to work with accuracy, speed. This is consistent with the research of Koukis et al. (2009) which noted that in the case of ERP systems, the coercive pressures may appear to be the demand from the distribution unit and customer for quality of service and performance. There are only four people who agreed with the pressure of emulating people / agencies that successfully use the system (Mimetic Pressures). They viewed the agencies that use the system successfully influence their agencies to start using ERP systems which is in line with the research of Rifa'i Kouki, Diane Poulin and Robert Pellerin [23], but there are three interviewees who disagree and viewed that the person himself or his agency is more successful than others. This contradicts the research of Koukis et al. (2009) which is supposed to be proved in the next step.

The attitude toward using the user system, In Intrinsic Motivations issue the user can feel challenging in the ability of the user because the organizations constantly faces with a new situation. Feature of these systems increases the work efficient and productivity. As a result, user becomes satisfy with ERP System Adoption in the hospital. This is consistent with theories of technology acceptance (TAM) which states that the perceived usefulness of the system is the basis to build a positive attitude towards the system.

The study results were shown in Table 1 below.

Table 1: Research Summary on Factors of Adoption of Enterprise Resource Planning System of Hospitals in Thailand.

Theory	Interviewee	1	2	3	4	5	6	7	8	Remark
UTAUT	Effort Expectancy	☐	☐	☐	☐	☐	☐	☐	☐	8:8
	Performance Expectancy	☐	☐	☐	☐	☐	☐	☐	☐	8:8
	Facilitating Conditions	☐	☐	☐	☐	☐	☐	☐	☐	8:8
	Social Influence	☹	☹	☹	☐	☹	☐	☐	☐	4:8
Institutional pressures	Mimetic Pressure	☹	☹	☹	☐	☹	☐	☐	☐	4:8
	Coercive Pressure	☐	☐	☐	☐	☐	☐	☐	☹	7:8
	Normative Pressure	☐	☐	☐	☐	☐	☐	☐	☐	8:8
TAM	Attitude toward Using	☐	☐	☐	☐	☐	☐	☐	☐	8:8
	Intrinsic Motivations	☐	☐	☐	☐	☐	☐	☐	☐	8:8

5) Conclusion

The research study concludes that the expectations on the efforts of the system user (Effort Expectancy), the expectations for performance (Performance Expectancy, Facilitating Conditions) in UTAUT theory, Normative Pressure in the theory of institutions, Attitude toward Using in TAM theory have significant effect on the acceptance and use of ERP systems in Thailand hospitals. However, it is not conclusive in Coercive Pressure, Mimetic Pressure and Social Influence, and this will need to be studied in the further step. We also found that the factors those impact other factors such as Effort Expectancy, Performance Expectancy and Normative Pressure in the Institutional Pressures, have effects in supporting each other. Also, Facilitating Conditions affect the attitudes of the users toward learning of the system in the long run.

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The Information Technology for Thai Qualifications Framework for Higher Education

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Abstract

Presently, the information technology plays an extremely vital role in the development of educational systems. The office of the Higher Education Commission, which is in charge of regulating Thai higher education, has placed a number of strategies and policies to enhance Thai higher education standards and qualities. Thai Qualifications Framework for Higher Education (TQF: HEd) is one of the policies developed in order to enable all Thai higher education institutions to meet the same standards. The Academic Support and Registration Office of Phuket Rajabhat University is the university's central unit responsible for overseeing all curricula as well as instructional activities to align with Thai Qualifications Framework for Higher Education. Utilizing information technology in managing Thai Qualifications Framework for Higher Education not only aims at data storing purposes but also attempts to result in better knowledge management of curricula and instructional activities.

Keywords: Thai Qualifications Framework (TQF), Thai Qualifications Framework for Higher Education (TQF:HEd), Information System (IS), Knowledge Management (KM)

1. Introduction

The formation of ASEAN Economic Community (AEC) has been developed from the Association of Southeast Asian Nations (ASEAN) which was made up of Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Burma (Myanmar), Cambodia, Laos, and Vietnam. By 2015, ASEAN members will perform in accordance with the principles of open market-driven economy (THAI-AEC 2013). Consequently, the occurrence of regional competition in several different economic sections may be inevitable. The educational system, especially higher education, may be one of the areas which may encounter this incoming regional competition. The quality of higher education may be used to be a key performance index to point out whether the quality of graduates in each educational institution in each country can meet the standards set by the open labor markets or not. Higher educational system in Thailand is in charged by the Office of Higher Education Commission (สำนักงานคณะกรรมการการอุดมศึกษา 2013). Thai Qualifications Framework for Higher Education (TQF:HEd) was designed by the Office of Higher Education Commission in order to encourage the implementation of the educational guidelines expressed in the National Education Act and to ensure accordance in higher education qualifications standards in Thailand. Information technology may be considered as a strategic tool which could bring more competitive advantages and work efficiencies to educational institutions. Moreover, it could be employed as a key performance index to indicate that the organizations are the leading ones in the market with reliable information. Likewise, Phuket Rajabhat University's Thai Qualification Framework Information System was designed and developed in order to meet all educational standards and to serve required information for the purpose of educational quality assurance.

2. Thai Qualifications Framework for Higher Education (TQF:HEd)

Thai Qualifications Framework for Higher Education (TQF:HEd) is a framework designed to describe the nation's educational qualifications for higher education. It consists of levels of qualifications, close linkage from an entry level to higher levels, classification of areas of study, domains of learning, learning outcomes of domains of learning at each of the levels which an increase in the scale or complexity of the learning is expected, consistency between the amount or volume of learning expected for qualifications at each level and time spent, curriculum description in each level, the opportunity for transferring field experience into learning outcomes which may promote lifelong learning, as well as all systems and mechanisms which may enhance consistency of work efficiency with National Qualifications Framework for Higher Education to ensure that all higher education institutions can develop qualified graduates with respect to learning outcomes standards (ARCHITECTURE-KMITL 2010).

1.1. Principles of developing National Qualifications Framework for Higher Education (สำนักงานคณะกรรมการการอุดมศึกษา 2013)

1. National Qualifications Framework for Higher Education is used as a tool to encourage the implementation of higher education standards and quality assurance policies stated in the National Education Act.
2. The framework emphasizes on learning outcomes which are minimum requirements for completion at each level to ensure the quality of graduates.

3. The framework combines all relevant rules and declarations regarding curriculum, teaching and learning activities and integrates them as a single connected outline.
4. The framework may be employed as an efficient communication tool for developing understanding and confidence in expected qualifications of graduates for relevant individuals such as students, parents, entrepreneurs, communities, society and other institutions both domestic and foreign countries.
5. The framework was designed to ensure that all award titles for higher education qualifications in Thailand are acknowledged, and to clarify the equivalence of academic awards with those granted by higher education institutions in other parts of the world. By following the expected learning outcome standards specified in the framework, Thai higher education institutions are allowed to handle a variety of curricula and teaching methods with confidence in quality of graduates, success of graduates in career advancements, and employers satisfaction.
6. The framework may promote lifelong learning.

1.2. The purpose of the Thai Qualifications Framework (Thaiall 2012).

1. To be employed as a tool of quality assurance for minimum requirements of graduates in each area of study or each level of qualification.
2. To allow each area of study to possess its self-control of graduates' production. All graduates completing degrees from the same areas of study from each institution are needed to possess the same minimum requirements which were specified in those areas.
3. To achieve the goal of deregulations in educational operations for the institutions which are highly capable and well prepared for educational handling.

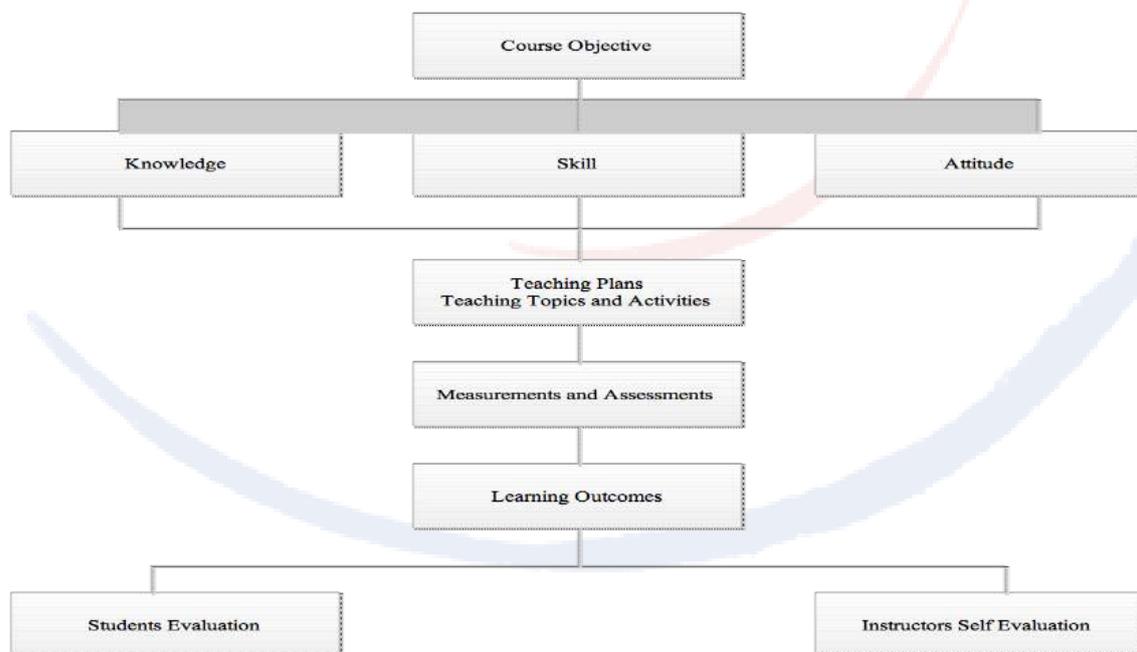


Figure 1 Teaching and Learning Structure (ARCHITECTURE-KMITL 2010).

required to be filled in by all course instructors in each semester for all taught courses. This may lead to a routine responsibility to all course instructors. Some Thai higher education institutions, as a result, have developed their own online information systems to serve their course instructors for completing online forms utilizing the capabilities of the information technology.

Kasetsart University (KU) is one of Thai Higher Education Institutions which has developed online course specification form (CSF) for Thai Qualifications Framework (TQF) (Pattanakul et al. 2010). Their system allows pre-filling common course information by directly linking some information from their curriculum. Besides, repetitive information can be reused and automatically filled in. Moreover, text typing can be reduced by enhancing users with check boxes functionalities. Furthermore, dependent information from earlier sections in the form can be related to subsequent sections. From all of these functionalities, it may be summarized that KU online CSF system contributes their course instructors and administrative staffs to minimize significant form completing time.

Another eminent evidence of Thai Qualifications Framework information systems is Chulalongkorn University Curriculum Administration System (CU-CAS) (Chulalongkorn-University 2013). With its web-based platform, the system allows all Chulalongkorn curriculum-related forms to be completed online. It also links all existing databases from Chulalongkorn's Office of the Registrar, Office of Academic Affairs and Office of Human Resource Management. Besides, with Chulalongkorn University Outcome-Based Curriculum (CU-OBC), all system's sub modules are fully integrated. Moreover, course evaluation functions for course instructors and students are also included in the system. Furthermore, academic course reports can be generated every semester for further review.

It may be stated that a number of higher education institutions in Thailand such as Khon Kaen University (Khon Kaen University 2013), Bangkok University (Accademic-Affairs-Office-Bangkok-University 2013), Chiang Mai University (Chiang Mai University 2013) and Mahidol University (Mahidol University 2013) have already developed their own web-based information systems with the main purpose of facilitating the process as well as decreasing time spent to complete the forms. On the other hand, manual forms completion can still be found in some higher education institutions due to their insufficient readiness in developing the systems, lack of realization in the necessity of implementing systems and inadequate support from their management team.

4. PKRU TQF-HEd Information System

The purposes of the development of Phuket Rajabhat University's Thai Qualifications Framework for Higher Education (PKRU TQF:HEd) Information System are listed as follows:

- 1) To ensure the integrity and consistency of the TQF:HEd's data storing in all curricula and programmes.
- 2) To ensure the correctness of TQF:HEd's data access from all levels of users including course instructors, students and academic executives.
- 3) To enhance the university's quality assurance from both internal and external assessment in order to guarantee that all teaching and learning activities can meet the standard expectations stated in the TQF:HEd.

1.1. System Architecture

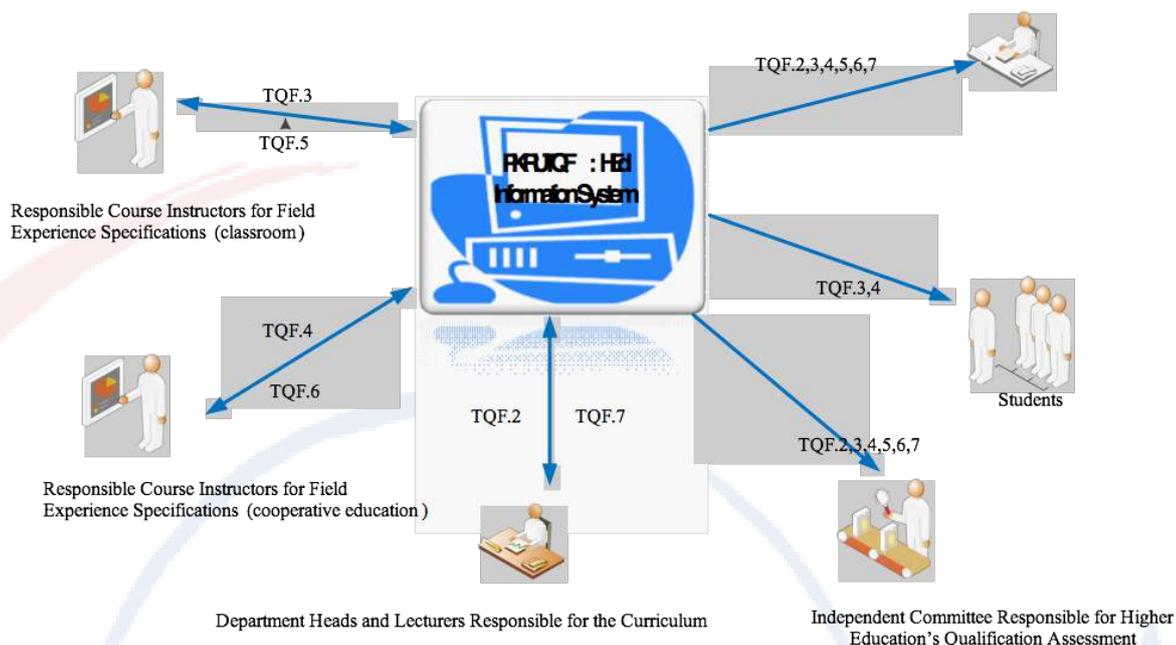


Figure 3 Thai Qualifications Framework for Higher Education Information System Infrastructure.

Phuket Rajabhat University’s Thai Qualifications Framework for Higher Education (PKRU TQF:Hed) Information System as shown in Figure 3 is an on-line information system which was designed and developed for the purposes mentioned earlier. The operations of the system are involved by a variety of users including course instructors, students, university’s academic executives in each management level, as well as internal and external educational quality assurance sections.

1.2. Database System

The conceptual schema of the database of Phuket Rajabhat University’s Thai Qualifications Framework for Higher Education (PKRU TQF:Hed) Information System is shown in Figure 4. This information system’s database requires to access the course information in registration database to find out all courses which are required to develop TQF3, TQF4, TQF5 and TQF6 in each semester. The conceptual schema of the registration database is also shown in Figure 5.

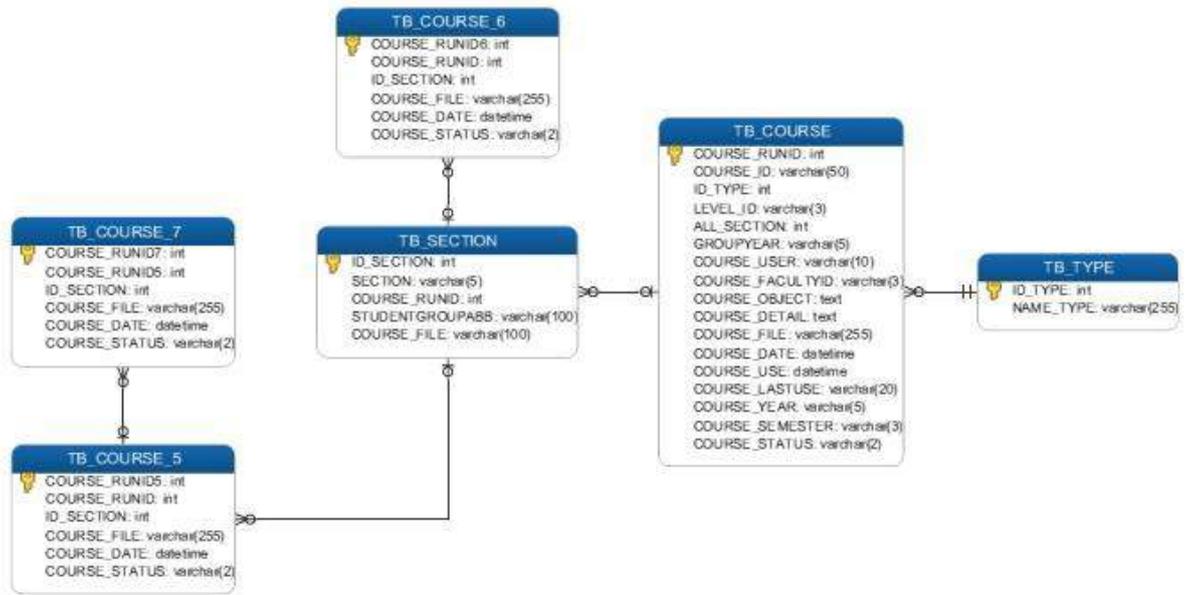


Figure 4 Conceptual Schema of PKRU TQF-HED Information System

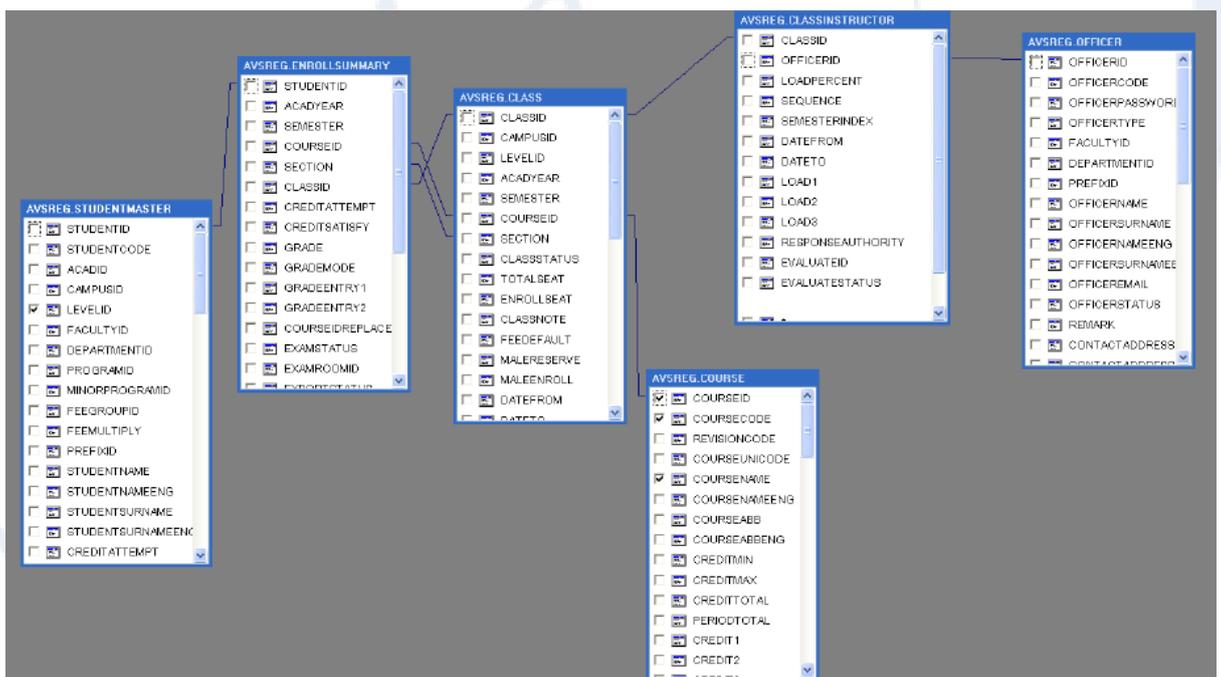


Figure 5 Conceptual Schema of Registration Database

1.3. User Interface

ผู้ใช้ระบบ
 ผศ.ดร.สุสดี พรหมผล
 คณะวิทยาศาสตร์และเทคโนโลยี

-เมนู -

- มคอ. 3
- มคอ. 4
- มคอ. 5
- มคอ. 6

แนวการสอน

- การค้นคืนสารสนเทศ [1 / 2556]
- ระบบการจัดการฐานข้อมูล [1 / 2556]
- ระบบการจัดการฐานข้อมูล [1 / 2556]

มคอ.3 ล่าสุด

- ระบบการจัดการฐานข้อมูล [1 / 2556]
- ฐานข้อมูลเบื้องต้น [1 / 2556]

รายวิชาทั้งหมด มคอ.3

ปีการศึกษา 2556 / 1

ที่	ประเภท	รหัสวิชา	ชื่อวิชา
1	ปริญญาตรี 4 ปี (ภาคปกติ)	8311202	ฐานข้อมูลเบื้องต้น
2	ปริญญาตรี 4 ปี (ภาคปกติ)	8311205	ระบบการจัดการฐานข้อมูล
3	ปริญญาตรี 4 ปี (ภาคปกติ)	8311403	การค้นคืนสารสนเทศ
4	ปริญญาตรี 4 ปี (กศ.บป.)	8311205	ระบบการจัดการฐานข้อมูล

ปีการศึกษา 2555 / 2

ที่	ประเภท	รหัสวิชา	ชื่อวิชา
1	ปริญญาตรี 4 ปี (ภาคปกติ)	8311202	ฐานข้อมูลเบื้องต้น
2	ปริญญาตรี 4 ปี (ภาคปกติ)	8311205	ระบบการจัดการฐานข้อมูล
3	ปริญญาตรี 4 ปี (กศ.บป.)	4123201	ระบบการจัดการฐานข้อมูล
4	ปริญญาตรี 4 ปี (กศ.บป.)	8311202	ฐานข้อมูลเบื้องต้น

ปีการศึกษา 2555 / 1

ที่	ประเภท	รหัสวิชา	ชื่อวิชา
1	ปริญญาตรี 4 ปี (ภาคปกติ)	8311403	การค้นคืนสารสนเทศ
2	ปริญญาตรี 4 ปี (กศ.บป.)	8311205	ระบบการจัดการฐานข้อมูล

Figure6.User Interface of PKRU TQF-HED Information System (partial)

1.4. Outcomes

Utilizing information technology in supporting educational operations is one of the key performance indexes which may be employed to point out that the educational system is reasonably qualified. The development of Phuket Rajabhat University’s Thai Qualifications Framework for Higher Education (PKRU TQF:Hed) Information System not only enables all relevant users including course instructors, students, academic executives, as well as quality assurance sections to make use of the information from the system but also leads to the application of knowledge management system (KMT 2013) for Thai Qualifications Framework for Higher Education which helps convert each course instructor’s tacit knowledge into explicit knowledge. This may encourage sharing of the information of teaching processes among course instructors in the same or different courses.

2. Conclusion

The development of Phuket Rajabhat University’s Thai Qualifications Framework for Higher Education (PKRU TQF:HED) Information System primarily aims at assisting all involved users including course instructors, students, academic executives, as well as internal and external quality assurance sections to utilize and access the information regarding courses, class teaching, internship and co-operative education which resides in the same qualifications framework in the system. In addition, it may result in the integrity and consistency of all relevant information of Thai qualifications framework for higher education. Furthermore, thinking processes, programme development methods and teaching procedures from all course instructors which are tacit may be transformed to explicit knowledge for the purposes of systematic knowledge storing and sharing among all relevant users.

Administrative Success Factors of Private Pre - Schools in Khon Kaen Under Office of The Private Education Commission: Multi-Cases Study

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Abstract

The objective of this multi-case research was to study factors affecting the administration and management of Private Pre-school, in Khon Kaen Province. The representatives were selected by Purposive for 2 schools including: the North-eastern Kindergarten School, and Prakuman-jesus-wittat Khon Kaen School, under the Office of Khon Kaen Educational Service Area 1. The research methodology consisted of documentary study, observation, and interview from the school administrators and teachers as key informants. Data were analyzed by Descriptive Analysis in each aspect of conceptual framework, and investigated by using the Triangulation Technique.

The research findings found that:

- 1) The success factors of the administration and management in both of Private Pre-schools in Khon Kaen Province, were different. There were 5 success factors of the North-eastern Kindergarten School, including: the structure, the human, the work task, the technology, and the financial factors. For Prakuman-jesus-wittaya Khon Kaen School, there were 5 success factors of the administration and management including: the structure, the human, the work task, the technology, and the environmental factors.
- 2) For success factors of the administration and management in both of Private Pre-schools in Khon Kaen Province, there were additional factors from tentative framework developed by the researcher, for instance, in the North-eastern Kindergarten School, a small sized school, there was an additional factor as the financial factor, and Prakuman-jesus-wittaya Khon Kaen School, a large sized school, there was an additional factor as the environmental factor.

Keyword: Administrative, Success Factors, Private Pre - Schools

Background and Significance of the Problem

The quality of education was a chronic problem in Thailand. Although there was an attempt for Educational Reform for more than 10 years from the first round in 1999 to the second round in 2009, the problem still couldn't be solved. There many causes of this problem until we didn't know where should be started. In addition, some aspects of reform could make it be worse, for instance, the quality assurance was to increase document work for teachers. As a result, the teachers had less time for preparing their lessons. The Educational Quality couldn't be improved concretely. (amman Siamwala, 2012) According to data from the Office of Budget during 2003-2011, specified that Thailand increasingly allocated the Education Budget in every year. But, Thai Children's learning achievement was lower down which reflected that although each school year budget was increased, Thai Children's Educational Quality wasn't increased. (Somkiet Tangkijwanich, 2012)

The Office of Private Education Commission, was a work unit being assigned from the government to provide the Education one year before Primary school. The objective was to develop the quality Kindergarten Education by being able to produce students with readiness in their physical, mental, social, intellectual aspects as well as initiative and creative thinking to be congruent with experience development guideline, readiness before entering to Primary School, and development of correct value for the parents. (The Office of Private Education Commission, 1992) The Pre-school Educational Management was necessary for every child since it was to prepare one's early life period before studying in Primary School. This level of Education, provided for 3-5 years old children, an important period since children would have rapid development in their physical, mental, emotional, social, intellectual as well as personality. It was the age connecting from infancy period. Therefore, 3-5 years old children should be prepared their readiness in every developmental aspect in the right direction continuously in order to be important foundation in their future. (The Office of National Primary Education Commission, 1996)

One problem in recent society which had high impact on Thai Early Childhood, was the weakness of family institution in child rearing practice. A number of early childhood might receive inappropriate child rearing practice which could affect their quality of life in both of the present and future. Besides, there were different environmental problems which might affect the early childhood' health as well as development and learning. In addition, the movement of different cultures from outside, could directly and indirectly affect their livelihood. As a result, the importance of cultural identity in one's own culture had to be aware of. Consequently, child development as relevant to cultural context as well as social lifestyle which were different, was very important. (Kriengsak Roonroj, 2012)

In the environment of business implementation in Educational Institute especially the private school enterprise, it aimed to the excellence for one's own private school. Each school administrator viewed the meaning of "Excellence" and strategy leading to the excellence differently. For business in Education with high competition since the international level of Education Marketing was more enlarged and progressed for business implementation in Thailand. Technology was rapidly developed.

Furthermore, the consumers as students and their parents, wanted to received good instructional service with “high quality in reasonable price.” (Patompong Soopalerd, 2006)

The successful school management would lead to Educational Quality Development since the school would be successful, it was required development. In addition, most of successful schools, would be recognized by parents and community, and assured the school quality by different institutions from inside and outside. Consequently, the researcher was interested in studying the Success Factors of School Administration which caused the schools to be awarded. The researcher selected North-eastern Kindergarten School, Khon Kaen, a small sized private school, being recognized as the excellent instruction by receiving 3 periods of the Royal Award from His Majesty the King, in 1999, 2003, and 2007 (North-eastern Kindergarten School, 2012), and Prakuman-jesus-wittaya School, Khon Kaen, a large sized private school being awarded for 3 periods from His Majesty the King, in 2002, 2006, and 2010 from the Ministry of Education, shield award of Pre-school Educational Management with excellent quality from the Ministry of Education, Open House from the Office of Khon Kaen Educational Service Area 1, and being assured by the Office of Accreditation in Educational Standard and Quality Assessment (OAE) in 2007 school year. (Developmental Plan, Prakuman-jesus-wittaya School, 2012)

The findings of success in both schools being awarded, was caused by continuous quality development. As a result, the factor of success on the school administration and management, would have knowledge in which factor would affect both schools being selected for the award as Royal Award, in order to be able to use as guidelines for quality improvement and development, and work practice of school to be the most benefit as objective in Educational Management further.

Research Objectives

To study the Success Factors of Private Pre-school Administration and Management in Khon Kaen Province.

Research Methodology

This research was a Qualitative Research by using the Multi-Case Study in Private Pre-school.

1. The Target Group, the target group using in this study consisted of 2 private pre-schools in Khon Kaen Province, including the North Eastern Kindergarten School, under the Office of Khon Kaen Educational Service Area 1, a small sized pre-school, and Pra-kuman-jesus-wittaya School, Khon Kaen, under the Office of Khon Kaen Educational Service Area 1, a large sized pre-school. The researcher determined criterion in selecting the case study school as: to be 3 periods as the Royal School Assessment, and 2) the school passed the assessment by the Office of Accreditation and Educational Standard and Quality Assessment, in 2 rounds. The key informants were the school administrators and teachers of both schools.
2. The variables using in this study, were: 1) the structural factor, 2) the work responsibility, 3) the human factor, and 4) the technology factor.

3. **Research Instruments** - In this study, the researcher was an instrument. The other instruments for data collection were: the Interview Form, the Filed Notes, the Observation Form, and the Documentary Study.
4. **Data Collection** - The researcher collected data from both of schools by using the Participatory Observation, and Non- Participatory Observation in various school activities, and Interviewing the school administrators, teachers, and Educational Staffs. The Triangulation Technique was administered for checking validity of data.
5. **Data Analysis** - The researcher analyzed data by Descriptive Analysis in each side based on conceptual framework of the study, and presented in narrative form.

Research Findings

1. For the **Structural Factor**, both of schools organized the same 4 divisions Structural Management. But, they classified the line of command based on different class lines. For role and function determination, it was classified by teaching function, and structural function determining by the staffs' aptitude.
2. For **Human Factor**, both of schools had administrators with far and broad vision, ethics and morality, knowledge and competency in both of academic as well as administration. They were recognized by the society. The teachers had working skill and worked as a team. They had satisfaction and intention to work.
3. For **Work Responsibility**, both of schools determined teaching responsibility for classroom teachers, and other works based on structure including good administration and management, and the staffs taking care of finance, administrative work, information technology.
4. For **Technology**, both of schools had standardized building and site, the classrooms were large size sufficiently for students, the experienced plans were organized according to students and community' interest relevant to curriculum, and the students could learn and search for knowledge from real life situation.
5. The North-eastern Kindergarten School had finance factor in addition to tentative framework determined by the researcher, for developing the learning management by buying the expensive toys in playground as well as decoration for school. The environment was managed to be peaceful and livable in order to be learning origin outside classroom as well as incentive for students' parents to send the children to study.

The Prakuman-jesus- wittaya Khon Kaen School had supplementary factor in finance in addition to the tentative framework determined by the researcher. The school emphasized on the environmental climate facilitating instruction for children as well as the learning origin both of inside and outside classroom, the garden and flower were organized, the name of flower as well as motto on the tree, various learning sources were organized for students to learn based on their interest in order to enhance the students' quality.

Discussions

The researcher presented the issues to be discussed as follows:

- 1. The Structure**, Prakuman-jesus-wittaya Khon Kaen School, ranked the order of this factor in the second one. For The North-eastern Kindergarten School, ranked it in the fourth order. Both of schools provided management into 4 divisions. But, the difference was the command based on class line. For Prakuman-jesus-wittaya Khon Kaen School, classified by the class line could be found from document, school structure management, and Interview. For The North-eastern Kindergarten School, classified the power in taking care of learning based on instructional curriculum. It was caused by Prakuman-jesus-wittaya Khon Kaen School was a large sized Pre-school including a large number of students. So, the decentralization into sub-power taken care by decision maker in every level for the issue could be made decision immediately. For the work needed decision making power, the conference would be held for consultation and made decision later. It was congruent with Netpanna Yawirach's (2000) statement that the decentralization in decision making into every level of administrator to have power to order as well as make decision within framework, was to lower down the high executive's responsibility. Consequently, the work management would be quick and in time. The persons were practiced for competency in decision making as well as responsibility.
- 2. The Human factor**, both of schools gave an importance to this factor in the first order. Since the administrators' characteristics were similar as the far and broad vision, ethical and morality, democratic, and recognized by people from inside and outside the organization. Furthermore, the administrators were very important persons in this factor because they had to determine the vision, policy, work plan, work management strategy, and command line to be appropriate with school context. Moreover, the findings of study in appropriate characteristic, found that the administrators' important personal characteristics, consisted of ethic, morality, human relationship, justice, vision, role model, knowledge, open-minded to listen to the others, modern, leader, generosity, enthusiasm, dedication, and good personality. For the school administrators' characteristics in work practice, the following up in work practice as well as evaluation, planning, assigning work task appropriately with the person, allowing the co-workers participate in self-development, decentralization, equality, team working, morale development, techniques usage in work management and practice, cooperation, and keeping pace with situation, should be given an importance. Besides, both of school staffs worked in team focusing on participation in expressing one's opinion. Consequently, their works were smooth and continuous. Saowanee Treputtarat's (2005) study in Factors affecting Effectiveness in using Basic Education Curriculum 2001, in Schools under Basic Education Office in North-eastern Region, found that in order to obtain effectiveness in usage of Basic Education Curriculum 2001, in the schools under the Office of Basic Education Commission, North-eastern Region, found that the effectiveness in curriculum usage, the school administrators should develop the Human Organizational Factor which was the factor influenced the most influence both of directly and indirectly.

- 3. The Work Responsibility**, both of schools gave an importance to this factor in the third order, the teachers' work was the classroom teachers who had to closely take care of their students throughout the time, be able to communicate with students' parents when the problems occurred, record each student's performance as well as development. As a result, the teachers would understand as well as have information of their children. So, they could be able to help each aspect their students' development. In addition, both of schools organized similar management system by classifying the division to work for being convenient and quick as well as efficient working. It was supported by Saowanee Treputtarat' study in Factors affecting Effectiveness in using Basic Education Curriculum 2001, in Schools under Basic Education Office in North-eastern Region, found that both of small sized school, and medium sized school had to not only develop the Human Factor in the first order, but also develop the Organizational Work Responsibility in aligned with Technology simultaneously.
- 4. The Technology Factor**, The North-eastern Kindergarten School ranked the importance of this factor in the second order. For Prakuman-jesus-wittaya Khon Kaen School, ranked this factor in the fourth order. Since The North-eastern Kindergarten School had policy in supporting the staffs to focus on using technology in work for being convenience and quick following new determined identity as "Good Knowledge, Be Ethical, and Leading the Technology." Furthermore, the library was large including modern learning media to be searched by students during their free time or library hour. Consequently, the students were knowledgeable, practiced analytical thinking based on their interest. According to the researcher's observation, found that there was no library in Prakuman-jesus-wittaya Khon Kaen School. According to the interview, found that the school had policy for students to participate in activities for the whole school in vertical line as : every student in every class, had to bring each one's favorite book, a book/month. The shared reading activity was organized at the Learning Park so that the students would learn how to share as well as be unity, develop good climate in organization. The class as well. It was congruent with Somkid Soinam's (2004) study in Development of Learning Organization Model in Secondary School, the findings found that the factor in Technology and Work System, the average value of teaching variable in different divisions indicated that the Technology Factor especially the computer as well as modern material and equipment, most of school wasn't ready in this aspect. It might be due to the budget being allocated in each school, was received from budget for each student by the government. So, it wasn't sufficient for buying them based on the users' need.
- 5. The Financial Factor**, was the factor from the researcher's framework. This finding obtained from The North-eastern Kindergarten School because the school administrators wanted to develop their school to be a leading one. So, they searched for budget to support the school development including: buying the modern media for instructional development, the safe equipment, technology, and toy in order to decrease the risk in being dangerous for students. Moreover, there was an investment in decorating the surrounding climate in school to be Learning Origin outside the classroom. These findings were obtained from the interview and observation by the researcher.

6. **The Environmental Factor**, was an additional factor from the framework that the researcher obtained from Prakuman-jesus-wittaya Khon Kaen School. The school organized the environmental climate facilitating the students' learning and teaching as well as Learning Origin by managing the environmental condition to be serene and proper. In front of the building, there were lotus pool as well as flowers being grown beautifully. Because the administrators gave an importance to the environment since the appropriate environmental management would enhance the early childhood' learning when the environment both of inside and outside classroom had to be organized to be clean, safe, opened, and closed to the nature.

Recommendations from the study

1. Recommendations for using the findings of this study

1. The administrators should give an importance to human development factor as the first priority. Since the research findings found that this factor was important which could affect the success in teachers' satisfaction as well as students' learning.
2. The large sized school administrators should develop other factors in aligned with the environmental factor.

2. Recommendations for future research

1. The study in comparison between private school, and public school, should be conducted in order to study factor of success in different contexts.
2. The study in this issue should be conducted in Primary School, Secondary School, and Higher Education, should be conducted in order to use the findings in studying the similarity and differences in different class levels, and assure the findings in case of similar findings. On the contrary, for different findings, the cause of differences would be known.

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The Relevance of Software Development Education for Students

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Abstract

It is widely acknowledged that there is a shortage of software developers, not only in South Africa, but also worldwide. Despite reports on a gap between industry needs and software education, the possible gap between students' needs and software education has not been explored in detail. Students want to take courses and be educated at university in courses and projects that clearly relate to their lives and their goals. This article reports on a quantitative study of 297 Computer Science students. All 12 factors identified from the data obtained from questionnaires indicated high reliability coefficients. The analysis suggests that there is a gap between students' needs and software development education, especially for certain groupings such as female students and students who rate their own academic performance as low. Software development education has more social relevance for students, but both personal and professional relevance is relatively lacking. We conclude that the identified groups of students should receive special attention to offer relevant software development education in their eyes and to meet the demand for software developers.

Keywords: Software development education; Software development students; Computing curricula; Software industry

1. INTRODUCTION

South Africa has a shortage of professionals with ICT skills (Harris, 2012), but this is a worldwide phenomenon (McAllister, 2012; Connolly, 2013). The Career Junction Index (CJI), which monitors online employment trends in South Africa, has published its 2013 findings on the Information Technology sector and found that software development (SD) is at the forefront of the country's significantly high IT demand (CareerJunction Index, 2013). South Africa therefore needs more software developers, but will students take courses if they do not find them relevant?

In promoting education, software developer Bill Gates (2007) focuses on his foundation's "3Rs" of "Rigour, Relevance and Relationships". The central pillar of relevance highlights the need for students to have courses and projects that clearly relate to their lives and their goals. At the same time, the SD industry expects students to be educated in courses and projects that are professionally relevant and that prepare them well for the workplace (Moreno et al., 2012). Numerous studies have investigated the relevance of SD education at university level, but have been mostly concerned with ways to make the education relevant to the needs of industry. Lethbridge (2000) analysed the relevance and depth of the knowledge that software professionals had received as part of their university education and identified a significant mismatch between software education and industry in terms of the knowledge needed by software engineers to meet the industry's requirements. Other researchers reported similar gaps (Kitchenham et al., 2005; Kim et al., 2006; Surakka, 2007; Lee & Han, 2008; Aasheim et al., 2009; Moreno et al., 2012), and for Lethbridge et al. (2007) filling them is one of the most critical challenges for SD educators. In his article entitled "Higher education: who cares what the customer wants?" Reisman (2005) argues that studies in higher education often neglect to collect data from two of higher education's most important players—faculty and students. In the light of the shortage of software developers this study therefore aims to investigate the relevance of SD education in the eyes of students.

2. CONCEPTUAL AND THEORETICAL FRAMEWORK

In this section, we discuss the background and literature behind the main concepts of this study, namely the concept of relevance, the type of students currently in university classes, and the literature on software development education.

2.1 The concept of relevance

Relevance is broadly defined as closely connected or appropriate to the matter in hand; or having significant and demonstrable bearing on the matter at hand; or practical and especially social applicability (Oxford English Dictionary, 2013; Merriam-Webster Dictionary, 2013). Labaree (2008), who works in educational research, emphasises relevance as a function not only of person and purpose, but also of place and time. He argues that in this field the question "useful to whom and for what?" needs to be answered because a wide array of actors is involved, including teachers, students, parents, textbook publishers and curriculum developers.

Relevance in the educational context can be defined as the applicability of what is taught to the needs and interests of students and society (Holbrook, 2009). The process of instruction and learning is designed to make what is learnt relevant/current to the time so that it can be implemented in the social environment. As a result, the student then sees the learning as meaningful, timely, important and useful, and it builds on the intrinsic motivation of the student for self-concern, self-involvement, self-appreciation and self-development (Holbrook, 2009).

Holbrook (2003) suggests three relevance perspectives which are used in this paper to analyse relevance:

- Social relevance – the “useful in society” perspective, which is a perceived need for the society;
- Personal relevance – the “interest” perspective, which directly relates to concerns in the students’ immediate environment or area of interest;
- Professional relevance – the “important for the course they are studying” perspective, which relates to the content of the curriculum that has to be interesting and useful to students.

2.2 The student in the software development class

Most students in current SD classes belong to the so-called Net generation, also known as the Millennial Generation or Generation Y. The Net generation (especially people born in the US and Canada from the early 1980s to the late 1990s) is characterised by students who may have never known life without the Internet (Cheese, 2008). Their early and omnipresent exposure to technology has defined their styles, their modes of communication, their learning preferences, their social choices, and their entertainment preferences (Saiedian, 2009). Numerous people analyse the main traits of different generations, but Hoover (2009) warns that it can be a strong form of stereotyping and that not all university students fit into one mould. For this reason, our study specifically investigated the range of students in the SD class.

A few studies have investigated the attraction to and retention of students in courses in computer science, and they have identified motivation, culture, pre-college experience, and confidence issues as contributing factors. Also, initial positive experience with computing, matching requirements of the discipline with perceived abilities, narrow perceptions on computing careers and career expectations were identified as key factors that influence students’ decision, first, to pursue courses in computer science and, second, to study the field further (Klawe, 2001; Margolis & Fisher, 2002; Tillberg & Cohoon, 2005).

A closely related issue to the attraction and retention of students is the gender composition in computing classes, the male domination being a matter of great concern for SD educators (Margolis & Fisher, 2002; Tillberg & Cohoon, 2005; Blum & Frieze, 2005). Women have been found to enjoy using existing systems rather than developing new ones and they are attracted when they recognise computing as a form of communication, a means of creative self-expression, or as a path to a helping occupation. Moreover, women prefer a contextualised curriculum in which computing and technology in general are seen as tools for solving humanity’s problems and enriching humanity’s experiences (Tillberg & Cohoon, 2005; Shotick & Stephens, 2006). Men on the other hand have a greater technical appreciation of computers and they enjoy playing computer games (Carlson, 2006). Margolis and Fisher (2002) reveal that most men describe an early and persistent magnetic attraction between themselves and computers and the computer is the ultimate toy for them.

2.3 Software development education

Software and technical developments have been remarkable in the last few decades, and continue unabated (O’Grady, 2012). Not only is the dependence on software increasing, but the character of software production itself is changing – and with it the demands on software developers (Shaw *et al.*, 2005; Shaw, 2000; Stankovic, 2009; Saiedian, 2009). This presents new challenges for the education of software developers (Shaw *et al.*, 2005; Shaw, 2000).

Several studies suggest a gap between the knowledge and skills demanded by the industry and the knowledge and skills gained by graduates of university computing courses. The seminal study of Lethbridge (2000) in this field identified gaps between the education and training received and the knowledge required from the viewpoint of the software development industry. Lethbridge's survey dealt with professionals with industry experience and found gaps in: HCI/user interfaces, Real-time system design, Software cost estimation, Software metrics, Software reliability and Fault tolerance, and Requirements gathering and analysis. Kitchenham et al. (2005) ran a similar study as Lethbridge (2000), but with recent SE graduates and the results were quite different with gaps appearing to relate to Web-based programming, Project management, Configuration and release management, Multimedia, Security and cryptography, and Computer graphics. Both studies found that mathematical topics appear to be taught in more depth than required in the industry. Another similar study was performed by Surakka (2007) in the Finnish context, but he surveyed three role players namely software developers, professors and lecturers, and master students about the relevance of different matters. His results coincide with Lethbridge's (2000) and Kitchenham's (2005) results regarding the excessive importance attached to mathematics-related topics at university, and with Kitchenham's findings of the increased importance of Web-related subjects and skills in industry.

When Information Systems curricula were analysed from the perspective of the industry the following gaps in knowledge and skills were found: problem solving and project management skills, knowledge of business, IT business consultancy, security, end-user computing, soft skills related to core knowledge, knowledge related to leadership, and negotiation or giving presentations (Lee & Han, 2008; Kim et al., 2006; Moreno et al., 2012).

Education for software developers currently emphasises content inspired by closed-shop mainframe development. It is offered largely in traditional classroom formats. Software developers are now educated in much the same way as they have been for years. However, courses with a primary emphasis on current technology in which most of the knowledge will become obsolete as the technology does are a major challenge in the education of software developers. Pressures arising from the changing character of software and from external pressures on educational institutions will require changes in what we teach software developers and how we teach it (Shaw, 2000).

Lethbridge et al. (2007) argue that the majority of quality and budgetary issues with software have their root cause in human error or lack of skill. These in turn arise in large part from inadequate education. Therefore improving education should go a long way towards improving software and software practice.

Students need to see the relevance of teaching and learning, as it applies to them personally (their own lives, their career expectations, the wishes of their parents), or the relevance as it applies to society (wishes of the community, employers, the university) or as it applies to them professionally (the content / curriculum is meaningful) (Holbrook, 2003). The realities of the software industry for which the Net generation need to prepare have shifted away from those of the foundational beliefs and practices of many of their educators. The educators need to become familiar with the students' teaching and learning challenges and should investigate their distinctive qualities and personal preferences. Educators must identify the necessary ingredients for successful teaching and learning in order to improve teaching practices and course delivery methodologies (Saiedian, 2009). This study

therefore investigates the relevance of software development education in the eyes of students.

3. RESEARCH METHOD

In this section, we discuss the demographics of the participants, the survey instrument and how the survey was conducted.

3.1 Research design and participants

This quantitative study was conducted at a university in South Africa and it aimed and was operationalised to investigate the relevance of SD education for students. Close to the end of the 2012 academic year 386 questionnaires were posted as an assignment on the e-learning system to students of the relevant SD classes. The number of usable responses received totaled 297, making for an overall response rate of 76.9%. The undergraduate students had a higher response rate (79.1%) than the graduates (56.8%).

Table 1. Profile of respondents (n=297)

		Number(%) of students
Gender	Male	222 (75%)
	Female	75 (25%)
Academic Year	1	145 (49%)
	2	76 (26%)
	3	55 (19%)
	4 (Hons)	21 (7%)
Self-rated academic performance	<= 59%	68 (25%)
	60% – 74%	158 (57%)
	>= 75%	50 (18%)

3.2 Data collection, instrument and analysis

A questionnaire with a pool of 57 items was developed by both writing new items and adapting items from available surveys, such as for instance ROSE (Schreiner & Sjøberg, 2004)

The first section of the questionnaire gathered information on the biographic data of the respondents as shown in Table 1. The questionnaire was further divided into four domains.

The first domain “Out of class” investigated personal relevance and had 12 items that gathered data on the students’ out-of-class experiences such as using the internet and developing a software system. The participants were asked: “How often have you done this outside formal education?” with a five-point Likert response scale: Never / Once or twice / I don’t know / Quite often / Very often.

The second domain “In class” investigated personal, social and professional relevance with 33 items and enquired on their perceptions of their SD classes, such as their enjoyment and interest in the classes.

The third domain “My career” had 12 items and investigated social relevance. It gathered data on their future career such as what is expected from a good software

developer. The second and third domain were accompanied by a five-point Likert response scale from 1 (Strongly disagree) to 5 (Strongly agree).

Factor analysis was used to investigate the 57 items in more detail to reduce the variables into a smaller number of factors. Bartlett's sphericity test showed that the p-values were less than 0.001. This test result suggested that factor analysis was worth pursuing. The 297 responses were examined using principal components factor analysis as the extraction technique and the 57 attitude items yielded 12 interpretable factors. Factors were named according to their main context. A Cronbach's α coefficient was calculated for each of the 12 factors and were found as Table 2 shows, to be reliable ($\alpha \geq 0.60$).

Table 2. Reliability coefficients of factors*

Factor	Cronbach's alpha (α)
Basic computer use	.743
Advanced computer use	.605
In class_Learn	.876
In class_Perceptions	.745
In class_Attitudes	.853
In class_Importance	.724
In class_Teaching	.678
Career_Attitudes	.843
Career_Skills	.772
E-mail use	**
Internet use	**
Skype use	**

* See appendix A for the items in each factor ** Individual item

The 12 factors were further divided into three perspectives of Personal relevance, Professional relevance, and Social relevance using Holbrook (2003) as guideline (see 2.1). Table 4 shows the division of the factors. A Cronbach's α coefficient was also calculated for the 3 perspectives and were found as Table 3 shows, to be reliable ($\alpha \geq 0.60$).

Table 3. Reliability coefficients of perspectives

Perspective	Cronbach's alpha (α)
Personal relevance	0.652
Professional relevance	0.909
Social relevance	0.704

Basic analysis was done by calculating the mean values and standard deviation of each of the 12 factors, as well as those of the three relevance perspectives. The statistical tests used in our analysis varied as necessary to match the metric being analysed. Two groupings were identified based on gender and self-rated academic

performance. The gender grouping was tested for significant differences between means in the different factors using a T-test and the academic performance grouping was tested with an ANOVA. Spearman's rank correlation analysis was also used to analyse relationships between the groupings and the factors. When the results of these interaction analyses are reported we will typically only discuss the significant interactions or primary effects. Unless noted otherwise, all statistical tests were performed with a significance level of $\alpha = 0.05$.

4. RESULTS AND DISCUSSION

In this section, we look at important data from each of the factors, as well as information that can be obtained by comparing answers to the different questions.

4.1 General results

Table 4 shows that the mean values of 10 of the 12 factors are relatively high. Advanced computer use is one of the factors showing a lower mean, which indicates that students don't have that much out-of-class experience with developing a software system for somebody, writing a computer program and building a device. Further analysis (see 4.2) indicated that gender played a significant role in the advanced computer use of students. The other factor showing a lower mean is Inclass_Perceptions indicating that students tend to have a perception that SD is a difficult subject area, that the volume of work is high and the instruction in the SD class is rigorous. They were anxious/stressed when doing practicals, they found SD hard to learn and they were not confident that they will obtain their degree. Further analysis (see 4.3) indicated that academic performance played a significant role in the Inclass_Perceptions of students.

It is not surprising that these IT students had high mean values for Basic computer use, E-mail use and Internet use. The use of Skype is lower, but the low access to computers (see Table 1) and the high cost and slow speed of the Internet in South-Africa (Muller, 2013) might explain that figure.

The students' views regarding attitudes and skills in a SD career were found to be relatively high.

Table 4. Basic analysis of 12 factors and division of relevance perspectives

Factor	Relevance perspective*	Mean**	Standard deviation
Basic computer use	Pers	4.2936	0.7059
E-mail use	Pers	4.5387	0.8811
Internet use	Pers	4.8615	0.4559
Skype use	Pers	3.3266	1.6330
Advanced computer use	Pers	2.6970	1.0680
In class_Perceptions	Pers	2.9439	0.8815
In class_Attitudes	Pers	3.7588	0.8102
In class_Importance	Soc	3.8894	0.6643
In class_Learn	Prof	4.0737	0.6923
In class_Teaching	Prof	3.4545	0.6479
Career_Attitudes	Soc	4.4876	0.5343
Career_Skills	Soc	4.0744	0.6719

* Pers-Personal; Prof-Professional; Soc-Social

** Likert style responses were ranked from 1 to 5 respectively

Table 5 shows SD education has of high social relevance to these students. SD education also has relatively high personal and professional relevance to them.

Table 5. Basic analysis of the 3 relevance perspectives

Relevance perspective	Mean	Std. Deviation
Personal_relevance	3.7894	.5568
Professional_relevance	3.6045	.7149
Social_relevance	4.1546	.5006

4.2 Gender

Gender differences were analysed with a T-Test and Table 6 shows significant differences in means between the male and female students in 3 of the 12 factors. There is a large practically significant difference between the advanced computer use of male and female students. The male students had significantly more out-of-class experience with developing a software system for somebody, writing a computer program and building a device.

There is a medium practically significant difference between the out-of-class basic computer use of male and female students. Again it was the male students who played computer games, opened devices to find out how they work, installed programs on a computer, read about computers in books or magazines, downloaded music from the internet and used a dictionary, encyclopedia, etc. on a computer significantly more than females. These findings concur with studies like Margolis and Fisher (2002) with men describing an early and persistent magnetic attraction between themselves and computers and the computer being the ultimate toy for them.

The other factor that shows a medium practically significant difference between male and female students is Inclass_Attributes. The male students more than their female counterparts like the subject SD, would like to become software developers, their parents wish for them to become software developers, SD opened their eyes to new and exciting jobs, they enjoy working with computers and they find SD interesting.

Table 6. Gender differences in views on the relevance of SD education

Factors	Men (N=222)		Women (N=75)		Effect size	p
	Mean	SD	Mean	SD		
Basic computer use	4.4371	.5464	3.8689	.9256	0.61*	<0.001
Advanced computer use	2.9099	.9997	2.0667	1.0193	0.83**	<0.001
In class_Attributes	3.9286	.6850	3.2516	.9390	0.72*	<0.001

* medium practically significant difference

** large practically significant difference

When the gender differences regarding the three relevance perspectives were analysed by using a T-Test, a medium practically significant difference ($d = 0.56$, $p < 0.001$) between male and female students were found in terms of personal relevance. SD education has more personal relevance to the men because they use the computer more intensely and their Inclass_Attributes show a significant difference.

4.3 Academic performance

Students were asked to rate their academic performance in their SD courses and they were divided in three groups as follows: $\leq 59\%$ ($n=68$) ; $60\% - 74\%$ ($n=158$) ; $\geq 75\%$ ($n=62$).

The results of an ANOVA in Table 7 indicates a practically significant difference between the $\leq 59\%$ students and the $\geq 75\%$ students in terms of their Inclass_Perceptions. The $\geq 75\%$ students had a significantly more positive perception of the SD class. As can be expected, the $\leq 59\%$ students had a perception that SD is a difficult subject area, that the volume of work is high and the instruction in the SD class is rigorous. They were anxious/stressed when doing practicals, they found SD hard to learn and they were not confident that they will obtain their degree.

Table 7. Differences between the three groupings based on self-rated academic performance

Factor		Effect size	p
In class_Perceptions	$\leq 59\%$ vs $60\% - 74\%$	0.36	
	$\leq 59\%$ vs $\geq 75\%$	1.12**	<0.001
	$60\% - 74\%$ vs $\geq 75\%$	0.28	

** large practically significant difference

Furthermore, correlation techniques were used to analyse the correlation between the self-rated academic performance and all the factors. A Spearman rank correlation analysis was used to test the statistical significance of the association and found a medium practically significant relationship ($r = -.353$, $p < .001$) between the students' academic performance and their Inclass_Perceptions. The lower the students rated their academic performance the more negative perception they had of the SD class.

When the differences in self-rated academic performance with the three relevance perspectives as variables were analysed by using an ANOVA, no significant differences were found. Students' self-rated academic performance does not determine if SD education has more personal, social or professional relevance to them. Furthermore, when a Spearman rank correlation analysis was used to test the statistical significance of the association, no correlation between academic performance and the three relevance perspectives were found.

5. CONCLUSION AND RECOMMENDATIONS

SD education has social relevance for IT students, in other words they view it as useful to society. However, it has to a lesser extent personal and professional relevance for students. SD education does to a lesser extent relate to concerns in the students' immediate environment or area of interest and the content of the curriculum is less interesting and useful to them.

SD education has more personal relevance for male students than their female counterparts. They have significantly more out-of-class experience in the basic and advanced use of computers, they have a more positive attitude towards SD in class.

Students' self-rated academic performance does not influence their perspective on the personal, social or professional relevance of SD education. Students who rate their academic performance as high ($\geq 75\%$) have a significantly more positive perception of the SD class than students that rate themselves as low ($\leq 59\%$).

It can therefore be concluded that SD education has more social relevance for students, but personal relevance and professional relevance is relatively lacking. Certain groupings of students view SD education as more relevant than others. Male students, who rate their academic performance as high ($\geq 75\%$) rate SD education as more relevant.

To improve the relevance of SD education in the eyes of students, effort should be made to improve personal and professional relevance for students. Furthermore, attention should be paid to female students and students who rate their academic performance as low. SD educators and SD curriculum developers should take cognisance of what makes SD education more relevant in the eyes of students to attract more students to SD classes – and retain them. This can hopefully result in meeting the demand for software developers.

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APPENDIX A

Factor	Questionnaire items
Basic computer use	<ul style="list-style-type: none"> • played computer games • opened a device (radio, watch, computer, telephone, etc.) to find out how it works • installed a program on a computer • read about computers in books or magazines • downloaded music from the internet • used a dictionary, encyclopedia, etc. on a computer
E-mail use	<ul style="list-style-type: none"> • communicated with friends and family via e-mail
Internet use	<ul style="list-style-type: none"> • searched the internet for information
Skype use	<ul style="list-style-type: none"> • communicated with friends and family via skype
Advanced computer use	<ul style="list-style-type: none"> • developed a software system for somebody • written a computer program • built a device (robot, radio, computer, etc.)
In class_Learn	<ul style="list-style-type: none"> • In the software development modules we learn to collect and critically evaluate information • In the software development modules we learn to communicate effectively, both verbally and in writing • In the software development modules we learn to use science and technology effectively • In the software development modules students must be able to demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation. • In the software development modules we learn to work with others as a member of a team or group • The software development modules require from students to organise and manage themselves and their activities effectively • In the software development modules we learn to identify and solve problems using critical and creative thinking • Some of the work in the course are carried out as projects
In class_Perceptions	<ul style="list-style-type: none"> • I am anxious/stressed when I do the practicals • Software development is a difficult subject area • The volume of work in the Software development modules is high • Software development is rather easy for me to learn • The instruction in the Software development class is rigorous • I'm confident that I will obtain my degree
In class_Attitudes	<ul style="list-style-type: none"> • I like Software development better than most other subjects • I would like to become a software developer • My parents wish for me to become a software developer • Software development has opened my eyes to new and exciting jobs • I enjoy working with computers • Software development is interesting
In class_Importance	<ul style="list-style-type: none"> • I learn something new every day in the Software development classes • I think that the Software development I learn will improve my career chances • Our country need more software developers • I think everybody should learn Software development • The things that I learn in Software development will be helpful in my everyday life • This course has high expectations for all students
In class_Teaching	<ul style="list-style-type: none"> • The same staff are involved in teaching and research • People from industry are brought into the classes • I know what the outcomes are for the Software development degree • I know what software developers do in the workplace now that I am busy with my studies. • I knew what software developers do in the workplace, before I started my studies • The instruction in the Software development class is relevant • Some of the lecturers have industrial experience
Career_Attitudes	<ul style="list-style-type: none"> • have a good attitude, including a willingness to listen and to take instructions • be prepared to work hard and to learn (a thirst for knowledge) • have a desire to make something of oneself through hard work and application, a desire to succeed (realistically ambitious) • good time-management skills • have a preparedness to take responsibility • have a reasonable level of general knowledge
Career_Skills	<ul style="list-style-type: none"> • a neat and tidy appearance • have modern leadership skills like self-confidence and a preparedness to lead by example • have the ability to relate well to and to build relationships with others (emotional intelligence) • have a good set of exam results • have respect for others • have at least some idea of what career direction one wish to take

Using Machinima as a Method for Digital Color Practice and Narrative Creation

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Abstract

Combining visual game scenes, actions and narrative, Machinima, a by-product of the digital game, has been seen as a storytelling form of artistic expression and creation. Machinima means animated films made by machines. Specifically, Machinima is an art form involving videos created by using cinematic production techniques within computer software, usually games. Machinima differs from conventional computer graphic techniques because it allows creating films in real-time. Thus Machinima can be understood as either the method of making animation through 3D game technology or the animations made through the method. In this research project, we planned and conducted a course called “Game Arts” at the University of Taipei. Eighteen non-arts majors were recruited and encouraged to use the video game *The Sims 3 (TS3)* to tell a story. At the end of the class, they were asked to present their animated story and then discuss it with classmates. Through class observation, a class survey, group discussions, and collection of students’ personal artifacts (including their story script, sketches, charts, and animations), we gathered both qualitative and quantitative data. Most students enjoyed using *TS3* to visualize and present their ideas, and indicated a desire to create more Machinima in the future for telling and sharing stories. Moreover, making Machinima not only provided non-arts majors with a convenient tool through which to express and visualize their stories, but the Machinima process itself offered them a distinctive opportunity to discover and rethink meanings revealed in their stories.

Keywords: Machinima, digital games, digital narrative, the Sims3

1. Introduction

With growing popularity of digital games, the age range of players is not limited to teenagers. More and more seniors and female players have been engaged in digital game playing (Siwek, 2010). Given that what digital games represent is more than a virtual world carried by a physical system, the phenomenon and influence it has on the society plays an important part in our culture. As computer technology develops, various digital games come in the market, more and more appealing game are designed and game visual quality are getting more delicate and vivid (Schulz, 2008). Some games even offer players the recording functions so players can share interesting clips of their gaming processes with others after playing. More and more games, such as “Doom”, “Quake”, “Halo 3”, “StarWars”, “the Movie”, and “The Sims 3”, offer players, as explorers and recorders in the virtual worlds, built-in recording functions and playing functions to record and share their unique gaming experiences.

Instead of in-built recorders, some of games also offer players plug-ins and game editing programs to make video game animations. The operating mode of these programs is similar to those of traditional 3D animation production software, but it shortens the time of the process of modeling, lighting, and setting. Thus, it allows less-experienced players to operate shots in various game settings (Lowood, 2007; Gladstone, 2006). Playing and recording games at the same time, players can make animations easily while gaming (Hsiao, 2011).

These recording functions, plug-ins, lighting functions and updated rendering systems turn game engines into movie shooting tools. These advanced techniques have even impacted film shooting process in Hollywood. Directors, such as Steven Spielberg, George Lucas, and James Cameron, used Machnima to assist their film shooting (Marino, 2004). They first set up settings with game engines to calculate their shooting angles, movements, lighting, and other arrangements. Later, based on the update rendering, they discussed and edited their scripts and then officially shot the films. It is clear that such process can effectively save time and cost (Kelland et al., 2005).

There are a growing number of people interested in making Machnima in Taiwan. For example, AFK Pl@yers, which consists of three graduates from Graduate School of Radio, Television and Film at Shih-Hsin University. Their popular Machnima, based on the latest documentary “WOW”, was widely forwarded on the Internet. After its success on the Internet, their Machnima was awarded in a foreign Machnima film festival.

Game scenes nowadays have integrated visual effects, gaming, and storytelling. The byproduct of Machinima has been viewed as a way to create and tell a story (Lowood, 2006; Tavinor, 2009; Nitsche, 2005). With the advance of computer technology, Machnima will be an important new media in the future. Meanwhile, low production requirements mean the liberation of the mass media (Hsiao, 2011). Without having any expensive 3D animation software or following the standard process of animation shooting such as modeling, setting, and lighting, those who do not have experiences of animation production can easily make their own animations through video games and express their ideas and experiences in the society via this new media.

Over these years, the government has listed digital games and computer animations as important promotion items whether it is in digital content industry or cultural and creative industry. However, as mentioned above, it takes highly-professional skills to enter the digital game industry and animation industry (Hancock & Ingram, 2007). Thus, students need to receive a series of professional and intensive training to acquire basic skills in order to enter these fields. Even for art students who are well-trained in aesthetics and art creation, it is hard for them to create 3D animations if they lack related professional training courses to apply their skills to this new media. However, Machnima is the tool which can help students to break limitations of computer animation software and create 3D animation.

2. Course Design

College students who have not received training in the arts may find it comparatively difficult to engage in story-telling and related narrative development using visual media. This is especially true for those who turn to animation, which requires capabilities in art creation and mastering digital technologies. Yet in today's higher education environment, true reflective learning among non-arts majors necessitates the use of a broad range of visual media tools and resources. In a Taiwan Ministry of Education-funded project on animation-making and -sharing as effective media for promoting student reflection, we planned and conducted a course called "Game Arts" at the Taipei Municipal University of Education. Eighteen non-arts majors were recruited and encouraged to use the video game *The Sims 3 (TS3)* to tell a story.

"Game Art" set out from basic introduction of digital game industry to cultivate students' interest in digital games. After students were familiar with this new media, they were encouraged to create their own animation stories with visual literacy and later create their own Machnima. Then, students were encouraged to upload their works onto the Internet, share them with their classmates, and have further discussions about social or cultural issues related in terms of their story content, perspectives, expressive forms. Through this course, students were expected to review digital media production and create their own digital works in integration with motion images, audip effects, and editing.

3. Teaching Materials

1.1. Teaching Design

With a lack of teaching materials of Machnima production in Taiwan and abroad, the teacher decided to make her own teaching materials for a 16-week course, including theoretical courses such as digital game theories, history of Machnima, and related visual communication theories, visual communication design as well as practicum courses such as demonstration of digital game operation, comparison of setting and pictures, demonstration of visual software, editing skills.

Table 1. Course Syllabus

Week 1	Introduction of cultural and creative industries
Week 2	Introduction of animation and game animations
Week 3	Demonstration and practice of digital game the Sims 3
Week 4	Appreciation and discussion of AFK's Machinima works
Week 5	Story, script, characters, and plots design
Week 6	Story discussion
Week 7	Storyboarding
Week 8	International Machinima films appreciation
Week 9	Cheat and modification codes of the Sims 3
Week 10	Mid-term presentaion and discussion
Week 11	Digital editing
Week 12	Audio and visual effects & post-production II
Week 13	File formats
Week 14	Machinima film production practices and problem solving
Week 15	Final adjustments
Week 16	Final presentation

3.2 Class Activities

The teacher first classified various Machnima, home and abroad, in the order of year, theme, genre, classic, style, and so on. Some were played and discussed in class while the rest were put online for students' references. As for inclass activities, three directors were invited to give speeches and five film production professionals were invited to give students suggestions on their works. The activities were as follows: an invited speech of AFK@PlayersMachnima, an invited speech of film editors, a speech of Machnima professionals, a speech on storyboard, and a discussion of students' final works in the end of the semester.

1.3.Game Software

As for the game software, "The Sims 3" by EA Games in 2009 was used in "Game Art". "The Sims 3" is a strategic life simulation video game, featuring high-quality visual effects, interesting stories, and imaginative game settings. To be more precise, "The Sims 3" is a life simulation game, in which players create and take care of everything about their Sims, such as their family and living condition. This game is more like a house of dolls, where the Sims live their life while the players, as God, protect, guide, assist, and take care of the Sims to achieve their goals. Generally speaking, each Sim has his or her own personality. In addition to their players'

settings, their subconsciousness and free will are controlled by artificial intelligence. The Sims’ needs are based on Maslow’s hierarchy of needs (1968), including biological needs, safety needs, social needs, esteem needs, and self-actualization needs. Personality traits of the Sims are based on the 16 personality types of the Myers-Briggs Type Indicator. The growth experiences and memories of the Sims are based on Freud’s psychoanalytic theory.

As a strategic life simulation video game, “The Sims 3” offers players a virtual environment simulating real life without any specific goals and rules. Such game falls into the category “sandbox game” in ludology. Because there are no set rules in this kind of game, players can explore this game with more imagination and creativity. Thus, how to play and what they experience may vary. Moreover, as a strategic life simulation video game, this kind of game is suitable for shooting stories about family and human relationship. What’s more, the built-in recording functions of this game allow students to record process of gaming without any other video capture software or third party programs.

Meanwhile, students could use “Create a Pattern” (Fig.1), a free official program by the game company, to practice coloring by drawing patterns to decorate the interior environment or change the Sims’ clothes patterns. In class, students could even use pictures of the built-in “sticker bank” of this program or add their self-made patterns to create their own visual styles for further Machnima production.



Fig 1. Create A Pattern. Source: <http://www.thesims3.com>

In this course, Microsoft’s “Movie Maker” or Apple’s “iMovie” were used to edit the videos. Moreover, “Create a Movie”, an online editing program offered by Sims3 official website, was used to edit the after effects (See Fig 2). It gives not only detailed illustrations of Machnima production as well as eyecatch and subtitle functions as what we have in common editing software. There are many built-in data bases such as themed pictures, themed scenes, and various background music and sound effects for students to choose from. Students just had to upload their recorded chips from the game and then they could use the online editing program offered by the website to edit and have music and subtitles in their Machnima.

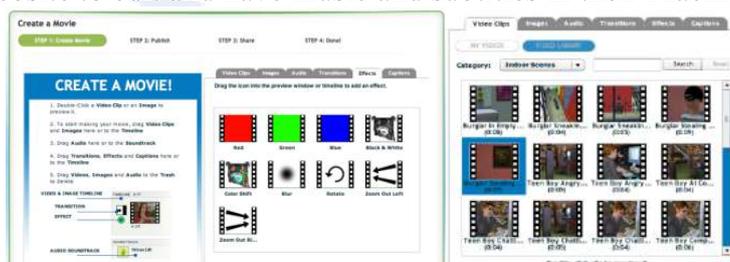


Fig 2. Create A Movie. Source: <http://www.thesims3.com>

4. Production Process of Machnima

In the story planning stage, students were first asked to give written explanations of “who”, “when” and “where” of their stories. Later, students were asked to design and arrange their plots. Based on their written description, they arranged their plot and drew their scripts and storyboards. Then, after discussions and revisions, students were asked to make their video game animation presentations by collecting pictures and scenes they needed in the game and adding them with sound effects, subtitles, and after effects. Since students taking this course were non-art students, they were withdrawn when asked to draw pictures. However, with the teacher’s encouragement, they managed hard to complete their works.

After students were familiar with the interface of the game and the control characters and shots in their first creation process, they were asked to do their final Machnima works. They were grouped to do their final Machnima works.

Each group had to present its proposal, including story, plot, characters, settings, storyboard, and so on. After invited speeches given by film shooting professionals, they started to set their characters and scenes, shoot their Machnima, edit and give after effects.

The research was conducted in the teaching environment of 16-week “Game Art” course and classroom observation. Data were collected from students’ midterm and final works, questionnaires conducted in the end of the semester, and two focus group interviews. Focus group interview is an often-used research method in sociology. Compared with traditional interviews, its advantage is that real and reliable research data can be easily collected in an open and relaxed discussion where interviewees can express their ideas, experiences, and opinions (Gillham, 2000). Moreover, deeper and various data could be collected through discussions and interactions in the focus group interview (Vaughn, Schumm, & Sinagub, 1996).

Two focus group interviews were conducted in the middle of the semester and after the final presentation in the end of the semester, each of which lasted for one and half hour. The research purposefully created an easy atmosphere in these two focus group interviews so students could freely express their ideas about Machnima making and about others’ works. With students’ signed informed consent, the researcher recorded the interviews and analyzed the transcripts. Regarding students’ works, each student was required to finish one video game animation presentation on their own in the middle of the semester while they could complete a 3-minute-long Machnima as their final works either by individual work or by group work of two. All their works were collected and later analyzed.

Concerning data analysis, this study involved not only descriptive quantitative data from questionnaires but also qualitative data for narrative learning and reflective learning.

5. Evaluation

“Game Art” was the first-ever course of Machnima production. It aimed not only to deepen students’ understanding of the current domestic and international situations of digital game industry and of cultural and creative industry but also stirred students’ unlimited creativity of the digital content through experiencing digital game playing.

In addition to its efficacy in boosting students' motivation, Machnima can trigger more discussions between teachers and students, topics of which can be extended to the trend of digital games, game culture, cyber communities, and related issues about contemporary visual culture. Meanwhile, since most students are digital natives, who grow up with digital media, they are familiar with how to use this new media. It is a great opportunity for them to integrate digital skills, cultural thoughts, and various issues.

In this study, there were 18 animations scripts, 18 video game animation presentations, and 11 Machnima works in total. Three groups' final works were complete of their own styles. Thus, teachers encouraged them to participate in foreign Machnima contests and assisted them with the application procedures, hoping that they would be more confident about their own works. Moreover, the teacher encouraged them to engage in jobs related to digital games or animations in the future, helping them prepare for the future engagement in the cultural and creative industry.



Fig. 3 The students' works form their stroyboard, still plots, to amination

Although game operation was difficult and most time-consuming to students, it was the part that most students liked and felt confident about. Many students were proud of completing their own works, with 89% (16 out of 18 students) wishing to share their Machnima works with their friends and 88% (15 out of 17 students) expressing their willingness to create their future works with Machnima. Furthermore, in students' feedback, it is mentioned that it was beneficial to them to reflect the connotation of this new media in the society by analyzing Machnima in Taiwan in class since they were seldom encouraged to reflect the meanings and connotations of the media in a way of critical thinking.

Although Machnima still has a lot to be desired, it has great potential in the field of art creation and digital narration. Its unsatisfactory image quality can be improved by the advanced game engines in the future. Furthermore, it is not fair to directly compare Machnima works, 3D animations, and movies since they are from different media. Although they can be used to tell stories, they set out from different fields and present stories from different scenes. In addition, more delicate facial and emotional expressions can be greatly improved by different camera movements, angles, and shots, and hearing description with various vocal expressions. As for copyright of Machnima, it will soon be regulated by laws. Gradually-growing and ever-developing, Machnima is more a creative media of culture than a film production tool or a genre of animation. It is an art movement which turns consumers into producers.

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*Emotional Prosody Mediated Visual Search in a First and Second Language:
Evidence from Eye-Movements*

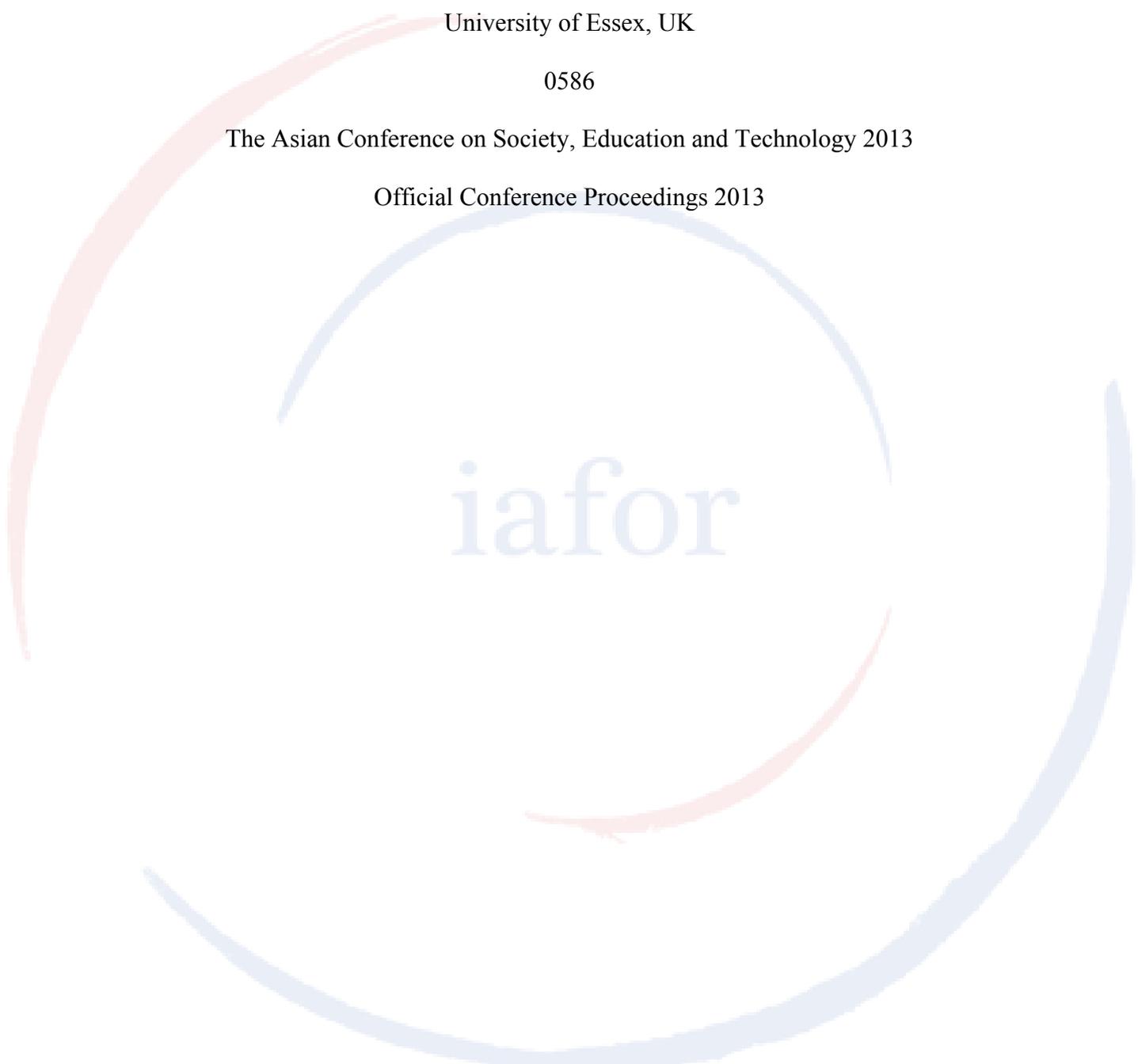
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Introduction

In recent years, a growing number of researchers investigated how eye tracking uses eye movements, in order to examine the interaction of perceptual systems which are involved with language and vision. Of particular interest was how language processing can influence visual perception (Spivey et al., 2001). Furthermore, other eye tracking studies had shown that linguistic prosody is used by listeners in order for them to understand and interpret what is said and to produce anticipatory predictions during real-time comprehension of spoken language (Ito & Speer, 2008). The purpose of the present study was to investigate if emotional prosodic cues—the rhythm and intonation of speech and the emotional state of the speaker—could similarly influence visual perception. Interest in whether participants' eye movements could be influenced by emotional prosody in real-time language comprehension has recently come to the forefront in the study of cognitive neuroscience in language by Paulmann et al. (in press). There is evidence that in every culture and language, utterances which are emotionally nuanced, are very important in helping people to understand the emotional meaning that exists behind the phrase. For example, imagine that someone asks how you are and you answer that you are fine. When the word “fine” is spoken in a sad tone of voice, the listener understands that the speaker does not really mean what they say. In fact the listener believes that the phrase conveys another emotional meaning (Sperber & Wilson 1986, cited in Kitayama & Ishii, 2002). The current study went further, investigating if emotional prosody could influence participants' eye movements, while they are listening to emotionally intoned instructions spoken in their first (L1) or second (L2) language during a visual search task. Bilingualism has always been a challenging area for the researchers who wish to explore the depth of bilinguals' minds (Pavlenko, 2006).

The Current Study

For the present study, a modified Stroop task was used. Participants' eye-movements were monitored as they looked at four faces with different emotional expressions on a computer display, while they were listening to emotional instructions uttered in two languages, German (L1) and English (L2). These utterances were either congruent or incongruent with the emotional prosody. To investigate the influence of emotional prosody as a clue for emotional face evaluation, the current study used eye-tracking equipment. A 'pre-time window' that measured the fixations and the accuracy of eye movements before the onset of the emotional adjective, was also used. The hypothesis of the present study was that reaction times would be longer for faces that mismatched the prosody than for faces that matched the prosody, when participants were listening to instructions in their first (L1) and second (L2) languages. It was also expected that participants would fixate longer on faces that matched the prosody than on faces that mismatched the prosody. Therefore, the study was an investigation into how the tone of voice might influence perception of facial expressions. How long would it take for participants to recognize the facial expressions? Would they use the information they heard or not? Would the fact that the sample was made up of late bilinguals affect their performance when they heard the intoned instructions in their first and second languages?

Method

Participants

Seventeen native speakers of German with English as a second language participated in the current study. They are comprised of 14 females and 3 males, with a mean age of 28.7 years and a mean length of education of 17.4 years. They were recruited through an advertisement that was posted at the University of Essex. All the participants had normal hearing and normal or corrected-to-normal vision. They all completed a consent form before the start of the study, which was ethically approved by the University of Essex. The participants were five undergraduate, ten postgraduate, one University staff member, and one senior teaching fellow. Fifteen of the participants came from Germany, one was from Austria, and one was from Somalia. Participants' mean number of years of education in the U.K. was 2.7 and their mean age of English language acquisition was 11.2 years. Both language preference and language proficiency ratings were obtained for each participant. Furthermore, all participants were asked about their language skills and preference at the beginning of the experiment. Six participants indicated no language preference, five participants indicated that English was their preferred language of communication while three indicated that German was their preferred language to speak in but English was their preferred language to listen to. One participant indicated a preference to speak in the second language and listen in the native language, whereas another participant indicated no language preference in speaking but preferred to listen in the second language. The final participant indicated a preference for the native language for speaking, but had no preference between the languages for listening. The participants were also asked to rate their language proficiency, speaking proficiency, and language independence on a scale of one to ten. The results are presented as follows: participants' mean rating for language proficiency was 9.4, their mean rating of speaking was 8.8, their mean rating for language independence was 9.1, and their mean rating for ease of language switching was 7.7.

Apparatus

Eye movements were recorded by the EyeLink 1000 Core System, consisting of a standard camera which provides an image of the eye that is being tracked. The host PC was a Macintosh computer on which the participants were able to watch the experiment, while their behavioral responses were recorded using a mouse. EyeLink Software was used to fixate, calibrate, and validate the participants' gaze, and finally to run the experiment. Speech files containing the instructions were recorded and played on the host PC. There were two speakers in the experiment: one English and one German native speaker. Both speakers were female.

Materials

Questionnaire. A language questionnaire was first given to participants with questions about their native country as well the number of years of education in their native or other country. The questionnaire also asked about their second language speaking proficiency and grammar skills, as well as language preference and language independence (see appendix).

Auditory Stimuli. The speech stimuli were simple auditory instructions uttered in English or German ('Click on the face with the xx expression', 'Klick auf das gesicht mit dem xx ausdruck', where 'xx' was an emotional adjective). The expressions in English were pronounced by a native English speaker and the expressions in German by a native German speaker. Five different adjectives were used in this experiment, reflecting four different emotional categories (anger, fear, happiness, and sadness), as well as a neutral emotion. The participant heard an auditory instruction to click on a specific face, which corresponded to each of the emotional categories. The instruction was pronounced with different emotional tones of voice (5 target emotions x 5 prosodic emotions x 2 languages=50 auditory stimuli). The utterances used were, 'klick auf das gesicht mit dem freudigen/aergerlichen/aengstlichen/traurigen/neutralen ausdruck' and in English the corresponding request were 'Click on the face with the happy/angry/frightened/sad/neutral expression'. The utterances were pronounced in a happy/angry/frightened/sad/neutral tone of voice. Pell et al. (2009a, 2009b) had used these specific terms in a previous study, and these results were considered worth mentioning by Paulmann et al. (in press). For that reason, this study used the same emotional terms. At this point it is important to mention that for each emotional category, the speaker produced a sentence in which the semantic content and the prosody matched (e.g. 'Click on the face with the angry expression', said in an angry tone of voice), and a sentence in which the semantic content and the prosody mismatched (e.g. 'Click on the face with the angry expression', said in a happy tone of voice or another tone except angry). The instructions given to participants were to click on the face which corresponded to the simultaneous instruction that was given from the computer, irrespective of the emotional prosody. Participants were asked to be as accurate as possible.

There were pitch variations across utterances. Generally, the angry utterances were spoken with louder and more highly pitched voices, while sad utterances were usually expressed with a lower pitch. Moderate variations in pitch were usually produced for happy utterances.

Visual stimuli. Four black-and-white photographs of 170 x 220 pixels with static facial expressions of an actor's face were presented to participants. For the presentation of these facial expressions, eight actors were used, four female and four male, of different ethnicities (Caucasian, Black, and Asian). Similar visual stimuli have been used in a previous study with success (Paulmann & Pell, 2010). For that reason, it was thought that it would be wise to use this kind of stimuli again. Each actor presented one exemplar for each of the five emotional categories. In 160 main trials (the practice trials are not included here) participants were presented with 32 angry, 32 happy, 32 sad, 32 frightened and 32 neutral expressions. These emotional expressions were used as they are universally recognized (Ekman, Sorenson, & Friesen, 1969), and there is also evidence that justifies the above statement, from a previous study (Young, Rowland, Calder, Etcoff, Selt, & Perrett, 1997, cited in Paulmann et al., in press).



Figure 1. Example of face targets, as presented in the experiment, posed by one of the actors.

Design

Five practice trials were presented at the beginning in order to help familiarize the participants with the experiment, and 160 trials in total represented the actual experiment. Four photographs of the same actor were shown on the display. Each photograph represented a different facial expression. These five expressions were of the target emotions, anger, fear, happiness, sadness, and neutral. The neutral face was always presented on the screen, as well as one face which matched the prosody, and one which matched the semantics. The commands, as mentioned above, were given to the participants in both English and German. Eighty trials were presented in the English language. In forty trials the emotional prosody and the target adjective matched (e.g. 'Click on the face with happy expression', spoken in a happy prosody and the same for the other emotions). In the other forty trials the emotional prosody

and the target adjective mismatched (e.g. 'Click on the face with sad expression', spoken in a happy voice). The same procedure was carried out in the trials presented in German. There were eighty trials in this language, as above, with forty where the emotional prosody and the target adjective matched, and forty where the emotional prosody and the target adjective mismatched. A 'match' trial was presented eight times for each emotional prosody (that is, 8 x AN_AN 'Click on the face with the angry expression' with an angry emotional tone), and a mismatch trial twice (that is, 2 x AN_FE 'Click on the face with angry expression' in a fearful emotional tone, 2 x AN_HA 'Click on the face with angry expression' in a happy emotional tone, 2 x AN_NE 'Click on the face with angry expression' in a neutral emotional tone, 2 x AN_SA 'Click on the face with angry expression' in a sad emotional tone = 8 mismatched in total for angry prosody). Two separate 2 x 2 x 5 ANOVAs (language x congruency x emotion) were conducted in a within-subjects experiment. The two dependent variables were the reaction times, meaning how long it took the participants to click on the stimulus face, and the accuracy rates, meaning how accurate participants were in choosing the face that was congruent. Three conditions were taken into account: the match/ mismatch between emotional adjective and face, the English and German languages, and the five levels of emotional prosody (anger, fear, happy, sad, and neutral). The interaction was therefore 3-way, among language, congruency, and emotion.

Procedure

After the preparation of the eye-tracking recording, the participants were seated in a dimly lit room 75 cm away from the monitor. EyeLink 1000 with 1000Hz sampling rate was used to record the eye-movements of participants. Furthermore, participants were instructed to sit straight, to place their head on the chin rest facing the centre of the screen, and to minimize head movements. They were also instructed to listen to the auditory stimuli carefully, and to use the mouse each time the experiment required it. Thus, each time the participant heard the specific request, for example 'Click on the face with the happy expression', they clicked the mouse, which allowed the experiment to continue. Each trial began with the participants fixating on a small black circle in the middle of the screen. After the fixation, the next step was the calibration and the validation of participant's ability to fixate on the small black circle. After this procedure the experiment was started. At the beginning of the experiment, the participants fixated again on the dot in the middle of the display. When participants clicked the mouse the experiment ran and a circular array of faces appeared on the display. Then, the same array was presented again, but this time followed by auditory instructions, requiring participants to click on a specific face as they heard the instructions. The first array of faces was presented in order to help participants familiarize themselves with these faces, as, when the face stimulus is presented in an unfamiliar view, the recognition of face identity is disrupted (Frischen, Eastwood, & Smilek, 2008).

Discussion

The present study investigated if emotional prosody could mediate visual search in both first and second languages. Specifically, we investigated if emotional prosody could be used by listeners to generate anticipatory predictions during on-line speech, and if that would influence the eye movements of participants when listening to

emotionally intoned instructions spoken in their first (L1) or second language (L2) during a visual search task. This is the first study which has used eye-tracking methods to examine this kind of hypothesis. What was generally expected was that participants would have longer to reaction times to faces that mismatched the prosody, than to faces that matched the prosody, as emotional prosody has a bigger influence in the first language (Pavlenko, 2008) and processing in second language is less automatic and less efficient (Birdsong, 2006) and is thus more prone to influence from prosody. Our results were derived from two different sources, behavioral data and eye-tracking data.

Behavioral data gave us important information about the current study, verifying the hypothesis. In relation to reaction times, we found that participants took longer to click when the prosody mismatched with the adjective than when the prosody matched with the adjective. Furthermore, participants clicked more quickly when they heard English instructions than when they heard German instructions. Moreover, participants took longer to click when hearing fearful and sad instructions compared to neutral instructions, and were quicker when hearing angry or happy instructions in comparison to neutral instructions. Based on results in accuracy rates, participants made more mistakes during incongruent instructions (e.g. happy prosody/angry adjective) than during congruent instructions (e.g. happy prosody/happy adjective). However, the accuracy rate error was low, which means that participants were very accurate in their trials. Only when the instructions were congruent, the fearful tone of voice led participants to make more mistakes than when they heard the instructions in a neutral tone of voice

Eye-tracking data complemented the findings, and gave us information about how emotional prosody could influence participants' gaze, verifying our expectations. These results allow us to understand where the participants' eyes were looking before the onset of the adjective, when they could rely only on emotional prosody. In general, participants made longer fixations to faces that matched the emotion of the prosody than to faces that mismatched the emotion of the prosody. Furthermore, when the emotional tone was fearful or sad, participants made shorter fixations than when the tone of voice was neutral. Moreover, when the instructions were spoken in English, participants made shorter fixations than when these were spoken in German. Taken together, our data provides evidence to support the predictions made in the current study. According to the eye-tracking results participants fixated longer onto faces that matched the emotional prosody than onto the faces that mismatched the emotional prosody. Furthermore, regardless of behavioral results, participants used the information they had heard in both their first and second languages, as the accuracy rates showed they were correct in both languages when they were responding to the adjective that they were asked to click on. Reaction times were longer for faces that mismatched the prosody than for faces that matched the prosody. Moreover, as late bilinguals, their performance was not the same in their first and second language, as they had shorter reaction times in their L2 than in their L1. The current results nicely complement previous evidence, and extend the research by giving us information about bilinguals' language processing. However, the data did not give us enough information about how exactly emotional prosody guides bilinguals' gaze in all the stages of language processing. This could be a challenge for future investigation.

Many explanations emerge from the data. As far as the behavioral data is concerned, it is plausible that participants would have longer reaction times to incongruent instructions, because until the onset of the adjective, they were looking at the faces. When the adjective was spoken, they clicked on the correct face. Thus, incongruent faces had greater reaction times than the congruent faces. As for accuracy rates, results showed that participants followed the instructions and accurately clicked on the face requested. Whether or not they were influenced by prosody at the beginning of the trial, in the end they clicked on the right face. Concerning eye-tracking data, it appeared that the participants looked longer at matched faces than mismatched ones, because they were influenced by the emotional tone before the onset of the adjective. Thus, they looked longer at the faces that matched the tone. According to the language findings, participants clicked faster in English than in German. Participants knew that they had to complete a task, and they tried to be as accurate as they could, following the instructions successfully.

Our results go hand-in-hand with several findings on congruency and face processing in the literature.

Interpretation of eye-tracking results

A recent study which referred to monolinguals showed that when the stimuli was congruent, participants fixated longer to matched faces, Paulmann *et al.* (in press). This current study went further, verifying that bilinguals fixate longer when the stimuli is congruent than when it is incongruent. Particularly, the pre-emotional time window showed that participants' eye-movements were more influenced by emotional prosody, as there was no semantic information at that time, and fixated longer to congruent stimuli. This clue leads us to agree with the previous study, which stated that the meaning of a vocal emotional expression exists in a listener's memory before the onset of the semantic instruction, and helps us to see that the emotion of the prosody can be implicitly assessed during on-line spoken language processing (Paulmann *et al.*, in press), even if listeners hear the instructions in two different languages. As mentioned in the introduction, participants more easily recognized the voices which were congruent to the face than those which were incongruent (de Gelder & Vroomen, 2000; Massaro & Egan, 1996; Paulmann *et al.*, in press). In the present study the findings complement the previous data. As such, we could state that emotional prosody influences visual attention just as linguistic prosody does (Ito & Speer, 2008), because it allows us to understand an incoming message, and also influences the way that our eyes move. The fact that combined visual and auditory processing can remove ambiguity and help us understand a facial expression (de Gelder *et al.*, 2006; Paulmann, Jessen & Kotz, 2009) might mean that eye gazes could be influenced by the emotion of a visual stimulus (Paulmann *et al.*, in press) and memory could play a crucial role in that. As Bower (1981) and Niedenthal *et al.* (1994) stated, emotion can be recognized irrespective of language, due to semantic memory structure (cited in Pell & Skorup, 2008). Previous studies showed that the speed with which participants recognize a face depends on specific emotions. Some emotions emerge more quickly than others (Oehman *et al.*, 2001; Batty & Taylor, 2003; Pell 2005a, 2005b; Paulmann & Kotz, 2007, cited in Paulmann *et al.*, in press), so the duration and the speed of the gaze depends on a specific emotional category. Our study discovered the same, complementing the previous findings, showing that bilinguals perform in the same way as monolinguals and their gazes were influenced in the same way. When the emotional tone was angry, participants fixated for a

shorter time than when the emotional tone was neutral and/or happy, verifying the finding that negative faces are recognized faster among neutral faces, or compared to happy faces (Calvo et al., 2006; Eastwood et al., 2001; Juth et al., 2005, cited in Calvo & Nummenmaa, 2008). After noting this, and the fact that participants fixated longer to matching faces, it was observed that they clicked on the faces that matched the prosody in the time period between 267-332ms after speech onset. This means that the initial emotional speech processing started at the first 200ms. Likewise, according to Martin, Shap and Boff, (1993, cited in Paulmann et al., in press) the first fixation starts after 150ms. Thus, it is easily understood that fixations to emotional faces will start to increase after 150-200ms. So, it is assumed that we need 267-332ms to extract prosodic information from faces. However, previous studies found that emotional information is extracted a few milliseconds earlier (Paulmann et al., in press). This has led us to believe that our findings were perhaps influenced by the use of two languages. In summary, a rapid emotional prosody is evaluated quickly and guides our eye movements in a few milliseconds. So, it is possible for us to anticipate events. When someone needs at least 200ms to extract emotional meaning, it follows that the eye-movements will make longer fixations to matched faces.

Interpretation of behavioral results

In behavioral results our findings confirm what previous studies have found. Participants had shorter reaction times to congruent instructions than to incongruent ones. As mentioned previously, this finding shows that participants were influenced by prosody before the semantic information. So, at first they fixated to faces that matched the prosody, but not the prosodic/semantic information. After the onset of the adjective, they matched the prosodic/semantic information, so there were longer reaction times to incongruent stimuli than to congruent stimuli. Our findings have been confirmed by previous studies which have found faster reaction times to congruent instructions (Hernandez et al., 2010; Bialystok et al., 2008a, cited in Bialystok et al., 2009). In general, bilinguals have the benefit of performing well in tasks that involve conflict resolution (Bialystok et al., 2006; Costa et al., 2008, cited in Bialystok et al., 2009). However, we must not forget that the initial instructions that were given to participants were to click on the face that matched the instructions. So, our findings were expected. What it is difficult to prove is that emotional prosody was the reason that made them match the face with the instruction, because as we know, semantic information is powerful. About this, research has reported that semantics are difficult to ignore when participants are told to focus on linguistic prosody. However, emotional prosody could be ignored when participants turn their attention to semantic information (Paulmann & Kotz, 2007; Paulmann et al., in press). Moreover, if we take into account the fact that emotional prosody is highly automatic (Schupp et al., 2004a; Hird & Kirsner, 1998, cited in Paulmann & Kotz, 2007) and non-voluntary (Wambacq & Jerger, 2004, cited in Paulmann et al., in press), we can understand that it was logical for participants' eye-gaze to be influenced by the prosody at the beginning of the utterance, but as the utterance was unfolding, it was logical for the semantic information to be dominant. Likewise, according to Paulmann et al., (in press), emotional prosody is presented in the first few milliseconds after speech onset. However, semantic information takes more time to be processed. As far as accuracy was concerned, the error rates were low. This means that participants clicked on the right face in the end. This finding pleasingly complements the previous research of Scherer et al. (2001), who said that when the face and the voice express the same

emotion, accuracy rates increase and reaction times of the listener decrease. This is because, combined visual and auditory emotional contexts resolve the ambiguity that facial expressions may occur (de Gelder et al., 2006; Paulmann, Jessen & Kotz, 2009), and manage to guide and facilitate visual search behavior even though the instructions did not require participants to follow the emotional cues (Paulmann et al., in press).

Interpretation of the difference between the first and the second language

In the current study, bilingual participants were used. So far, from the literature, this was the first time that research has used bilinguals to measure whether emotional prosody could influence eye gaze. Our present data has shown a statistically significant effect between the languages. Participants had faster reaction times in their L2 than in their L1. The accuracy rates were however almost the same. Unfortunately, our data cannot tell if it was emotional prosody that influenced participants to have faster reaction times in their second language. It is well known that bilinguals are more emotional in their first language (Pavlenko, 2008), but sometimes they sacrifice their emotions at the altar of successful completion of what they have to integrate. There is evidence, as mentioned in the introduction, that bilinguals are prone to ignore prosody when emotional information, in our case emotionally intoned instructions, captures their attention (Bialystok et al., 2009). Converging evidence from other studies has supported the conclusion that when misleading, irrelevant or false information comes to the fore, bilinguals have the ability to suppress it, and try to be as accurate as possible in what they were asked to do (Zied & colleagues, 2004, cited in Bialystok et al., 2009). Harris et al. (2005, cited in Sutton et al., 2007) stated that the Stroop type interference effect may vary between the two languages due to the age of acquisition. For late bilinguals, someone would expect the interference effect to be greater in L1. In conclusion, bilinguals sacrificed the performance of the first language for the sake of the second language. As the second language is less efficient (Birdsong, 2006), so it needs more effort to be accurate.

The present work has a number of limitations that should be addressed in future research. Although the pre-time window results suggest that emotional prosody can influence eye gaze during early stages of language processing, its influence on the later stages of processing remains to be investigated. Likewise, we cannot prove that bilinguals are influenced only by the emotional prosody, when they hear instructions in both their languages. As stated above, semantic processing is really powerful, and according to the present data this influenced participants' reaction after the onset of the adjective. Furthermore, the language effect does not show that participants' eye gazes were influenced more when they heard the instructions in L1 or in L2. Obviously, further research is necessary before any firm conclusions could be drawn about how emotional cues are processed in early and late language processing, and how eye-gaze could be influenced when emotionally intoned instructions are given in L1 and L2. A future study could measure the exact time of participants' eye movements during the language processing, at different stages. The more measurements taken the more knowledge could be extracted from them. Lastly, it remains to be seen whether or not the current results are produced by the suppression of the first language to enable the processing of the second language.

Conclusion

Taking everything into consideration, the present study, on the one hand has verified the previous findings, and on the other has added its own mark to the history of bilingual research. In short, the results have verified that emotional prosody is rapid and involuntary, that negative faces can be extracted more easily in comparison to neutral, and that it is easier to recognize emotional cues when the stimuli are congruent. Likewise, the results gave us the knowledge that participants, irrespective of language, are influenced by emotional prosody, especially at the early stages of language processing. They also showed that with eye tracking, real time language comprehension can be measured helping science to make a big step in interpreting the emotional stages of human communication.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is surrounded by two large, overlapping circular arcs. The upper arc is light blue and the lower arc is light red, both with a soft, feathered edge.

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A Comparative Study of Prosodic Boundary Features with Encliticized and Procliticized Function Words

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Abstract

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Keywords: prosodic boundary features, analytical thinking, language education, computational methodology, Pratt analysis, encliticized and procliticized function words

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Introduction

Background

- Prosodic phrasing in the speech stream is the key to the acquisition of native and EFL.
- Prosodic phrasing in spontaneous speech often does not match with syntactic structure in read-aloud speech.
 - Prosodic boundaries of 20% in a Swedish radio interview material occurred in syntactically unmotivated positions (Strangert, 2004 b).
 - Prosodic boundaries of 35% in the subset of the Boston Radio News Corpus were not consistent with syntactic structures (Fach, 1999)
- This phenomenon usually occurs at intermediate phrase boundaries when function words are encliticized (Cooper & Paccia-Cooper, 1980; Strangert, 2004 b).
- The prosodic features of boundaries change from strong to weak ones (Heldner & Megyesi, 2003; Strangert & Carlson, 2006).
- Function words in conjunction with prosody provide cues to prosodic phrasing (Gerken & McIntosh, 1993).

Hypotheses

1. Position & prosodic features of pauses will be changed when the function words are encliticized at intermediate phrase boundaries in spontaneous speech.
2. The length of the pauses following the encliticized function words will be shortened compared with the ones when procliticized.
3. Duration of encliticized function words will be lengthened.
4. High-phrasal accents will prevail when function words are encliticized.

Methods

Data Selection

- Selected from the audio book □HOOT□ for spontaneous speech and from the Korean English text book of high school for read-aloud speech.
 - 11 pairs of utterance containing function words at the intermediate phrase boundaries

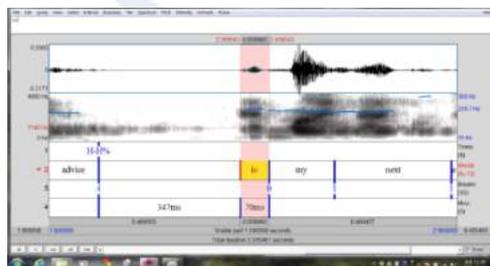
Procedures of Analysis

- Sound files are analyzed using Pratt program, mostly with spectrogram and waveform.
 - Measured acoustic duration of pauses and function words after normalization of ratio of syllables per second
 - Phrase accents are labeled by the author based on ToBI system.

Results

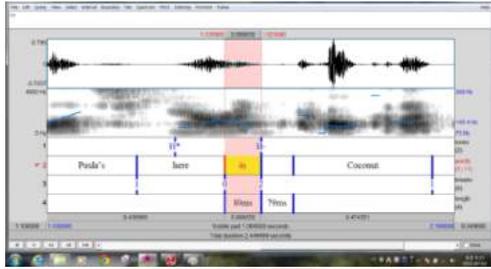
Examples of analysis:

procliticized 'in'



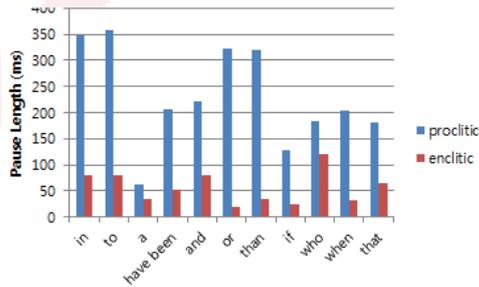
"I will start dispensing my personal advice / in my next e-mail."

encliticized 'in'

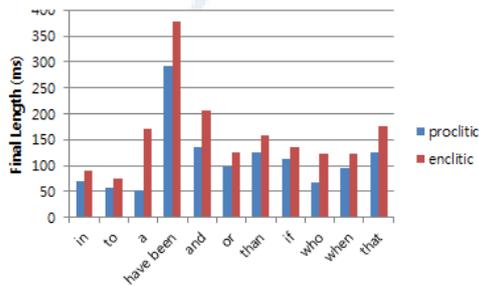


"We're getting a Mother Paula's here in / Coconut Cove?"

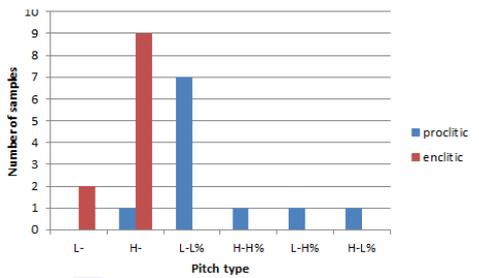
Length of pauses when procliticized and encliticized



Length of function words when procliticized and encliticized



Patterns of phrasal tones when procliticized and encliticized



- Average length of the pause is shortened from 255ms to 63.3ms.
- Average duration of function words is lengthened 46% from 93.6ms to 138.3ms (function word 'have been' is excluded for averaging)
- H-phrase accents prevail over L-phrase accents and low boundary accents.

Conclusion

- The encliticized function words at the intermediate boundaries and the accompanying prosodic features give the structural cues for comprehension and facilitate the acquisition of mother tongues and EFL
- The prosodic phrasing is produced implicitly even in silent reading.
- Practicing syntactic phrasing with the current text book for EFL is problematic.
- Practicing the correct prosodic phrasing with the prosody visualizer will be helpful for EFL learners.

Discussion

- The results confirmed the predictions: statistically significant ($p=2e-7$ for duration of pauses; $p=0.02$ for duration of function words)
- Prosodic cue-weighting is changed when function words are encliticized; intermediate phrase boundaries are mostly cued by pitch change and pre-boundary lengthening in combination at the early phase, whereas the function of pauses at the late phase seems apparently not to be significant.
- Lengthening of the weak syllables of the encliticized function words makes them prominent by slightly breaking trochaic foot pattern.
- The span of phrase tones is stretched and H-phrase tones prevail. This mechanism can represent the relationship between the structural components of utterance in advance.
- Shortening of the pauses is strategically practiced in order to expose the overall structural frame.
- Altogether, encliticized function words and the accompanying prosodic features at the intermediate phrase boundaries facilitate the prediction and integration functions of language performance.

Future studies:

- Developmental weight-shifting of prosodic features at the intermediate phrase boundaries can be explored with the components of Event-Related Potential, especially with 'Closure Positive Shift'.

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*Knowledge Engineering Analysis for Developing Knowledge Management System:
College of Arts, Media and Technology, Thailand*

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Abstract

Research and development are crucial to every university aiming at being the world-class educational institute internationally accepted. The College of Arts, Media and Technology is an academic unit of Chiang Mai University, situated in the northern part of Thailand, aspires to reach this goal by combining the best in education with the global-standardized research, encouraging its staffs and students to conduct researches in an inspiring environment yielding high-quality research results and innovation creations in order to become the university of research and world-class research university.

In the age of knowledge-based economy, knowledge is one of the most crucial factors in the world today. For any organization, knowledge is also considered a core asset in the process of value creation. As a result, the skills to create and utilize knowledge are definitely the core competitiveness. Knowledge Engineering can be used to identify opportunities and bottlenecks in organizational development, distribution and resource application.

From the examination of bodies of management using Knowledge Engineering via CommonKADS as a tool, it was found that 10 necessary bodies of knowledge to researchers and lecturers. The three bodies of knowledge with the most importance were the submission of research projects to outside funding sources, the budget for national and international academic presentation and the budget for academic publications. After analyzing these bodies of knowledge with CommonKADS, the result was the Knowledge Modeling diving knowledge into 3 levels of utilization called Task Knowledge, Inference Knowledge and Domain Knowledge. The necessary bodies of knowledge for researchers can be used in designing knowledge management system to be the center of education, knowledge creation, knowledge forum, knowledge storing, knowledge sharing and knowledge distribution for both tacit knowledge and explicit knowledge. In addition, this knowledge can be further developed to support the knowledge management and the organization's operation in the future.

Keywords: Knowledge Management, Explicit Knowledge, Knowledge Engineering, CommonKADS, Knowledge Modeling, Knowledge Management System

1. INTRODUCTION

Chiang Mai University (CMU), situated in the northern part of Thailand, aspires to reach this goal by combining the best in education with the global-standardized research, encouraging its staffs and students to conduct researches in an inspiring environment yielding high-quality research results and innovation creations in order to become the university of research and world-class research university. The College of Arts, Media and Technology (CAMT) is an academic unit of CMU publishing more and more academic and research publications every year. During the year 2007–2011, there were 195 publications, most of which belonged to the Ph.D. students from the Knowledge Management Department. In the past, the number of published research publications from the staffs has been small. Most research projects have been delayed. The research budgets from outside funding sources have been limited. Moreover the staffs have been unaware of the rules and procedures regarding the research conducting. On the other hand, most staffs have been inexperienced, lacking in knowledge, skill, aptitude and experiences for research conducting.

In the age of knowledge-based economy, Knowledge is one of the most crucial factors in the world today. For any organization, knowledge is also considered a core asset in the process of value creation. As a result, the skills to create and utilize knowledge are definitely the core competitiveness (Guodong Ni, et al., 2010).

Knowledge Management (KM) is one of the key progress factors for any organization which can be used to obtain explicit and tacit knowledge to facilitate the access, sharing and reuse of knowledge, while at the same time, create new knowledge and organizational learning (Nada Matta and Davy Monticolo, 2010) and reuse knowledge to improve its competitiveness (N. Zhang and W. F. Lu, 2007). An effective KM can assist in managing research projects more efficiently in terms of time, cost and output quality (B. Lgel and S. Numprasertchai, 2004). As a result, CAMT needs to manage knowledge and fully utilize the existing knowledge and assets.

Knowledge Engineering (KE) can be used to identify opportunities and bottlenecks in organizational development, distribution and resource application. Consequently, KE is a key factor in corporate knowledge management (Guus Schreiber, et al., 2000). In addition, KE is also considered to play a major role in stimulating expertise and at the same time, provide organizations with computational structures and build useful knowledge bases. In other words, KE's process can directly detect internal information processing mechanisms and processes of human experts (Christine W. Chan, 2002). KE process is has its base structure and lies of Knowledge base construction, Conceptual modeling, Operationalization and validation, Requirements analysis, and Refinement and maintenance (Alun Preece, et al., 2001).

CommonKADS is one of the KE methods focusing on the analysis and the synthesis of knowledge. This framework is used in Knowledge Capture, Knowledge Analysis, Knowledge Modeling and Knowledge Utilization. CommonKADS are divided into 3 levels, namely, Task Knowledge, Inference Knowledge and Domain Knowledge.

2. OBJECTIVE

The purpose of this research is to study and identify the bodies of knowledge necessary to CAMT researchers and lecturers which can lead to the improvement of Knowledge Management System (KMS).

3. RESEARCH METHOD

The interviews were conducted with the Associate Dean for Research and International Affairs Department and staffs at CAMT with the KE method by using CommonKADS as a tool to test Knowledge Audit which helps clearly identify each body of knowledge along with knowledge best suited with organization's mission by 4 Organization Models, Task Model and Agent Model. In addition, the results from the interview called the understanding of researches and creative projects of staffs were used as a part of this interview as a verification of the results.

4. RESULTS

According to the research body of knowledge, it was found that the research team of the Research and International Affairs Department was the core unit that drove and managed the researches of CAMT. There were 10 necessary bodies of knowledge to researchers and lecturers: (1) the knowledge in rules, regulations, announcements and protocols of CMU and CAMT (2) the analysis and planning of operations to achieve the key performance indicators (3) the intellectual property rights laws (4) the database for national and international researches (5) the information technology (6) the tax and the protocols regarding research funds received from government sections (7) the contracts and the terms for funding sources (8) the researcher's ethics (9) the CMU educational quality assurance (10) the annual performance agreement. All 10 bodies of knowledge were inappropriately formatted, misplaced, unready for utilization and poor in quality. Additionally, the website promoting the research department's information and announcement was uninteresting, unappealing and out-of-date, resulting in its unpopularity among users.

The three bodies of knowledge with the most importance were (1) the submission of research projects to outside funding sources (2) the budget for national and international academic presentation and (3) the budget for academic publications. After analyzing these bodies of knowledge with CommonKADS, the result was the Knowledge Modeling diving knowledge into 3 levels of utilization called Task Knowledge, Inference Knowledge and Domain Knowledge as can be seen in figure 1-5.

Figure 1 Critical Tasks of the Research Unit

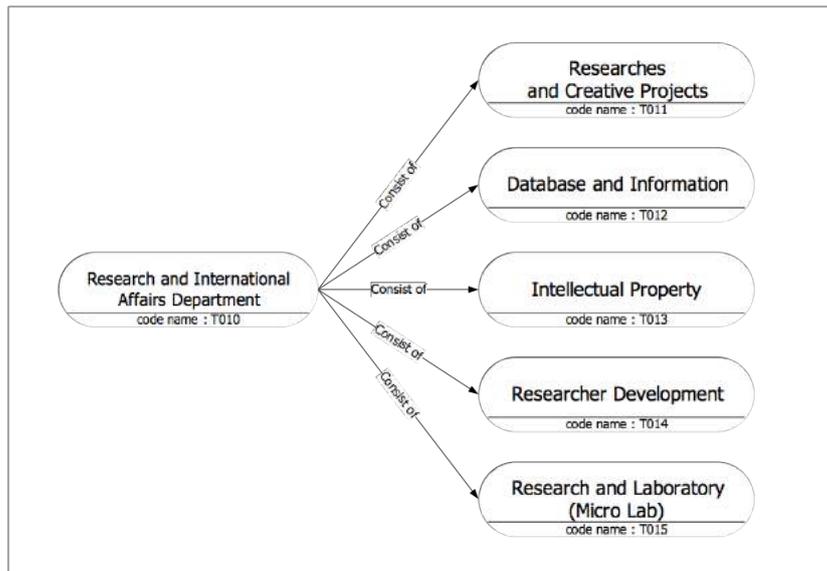


Figure 1 showed the 5 critical tasks of the research unit of the Research and International Affairs Department as followed: (1) Researches and Creative Projects (2) Database and Information (3) Intellectual Property (4) Researcher Development (5) Research and Laboratory (Micro Lab). Each task consisted of knowledge involved. The three bodies of knowledge with the most importance were under Researches and Creative Projects.

Figure 2 Inference Level Knowledge, Researches and Creative Projects

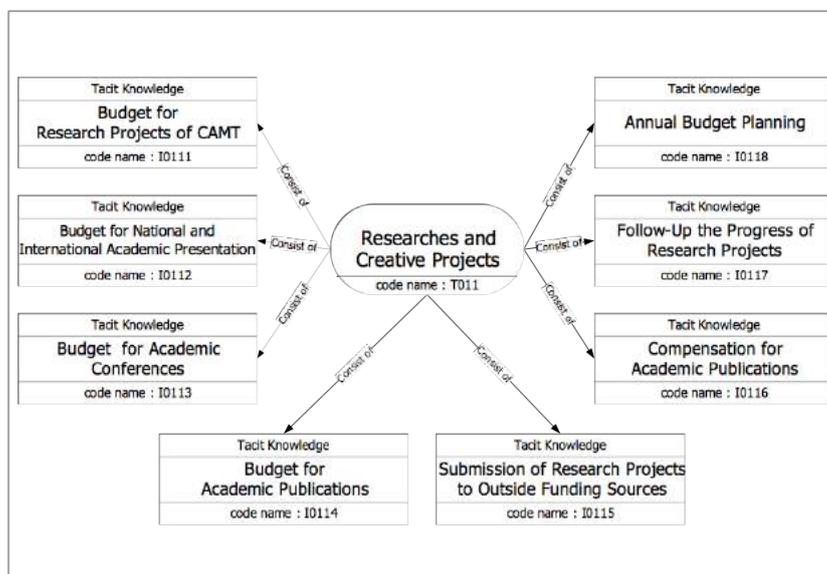


Figure 2 showed the 8 bodies of knowledge for the researches and creative projects as followed: (1) the budget for research projects of CAMT (2) the budget for National and International Academic Presentation (3) the budget for academic conferences (4) the budget for academic publications (5) the submission of research projects to outside funding sources (6) the compensation for academic publications (7) the follow-up on the progress of research projects (8) the annual budget planning.

Figure 3 Inference Level Knowledge, Submission of Research Projects to Outside Funding Sources

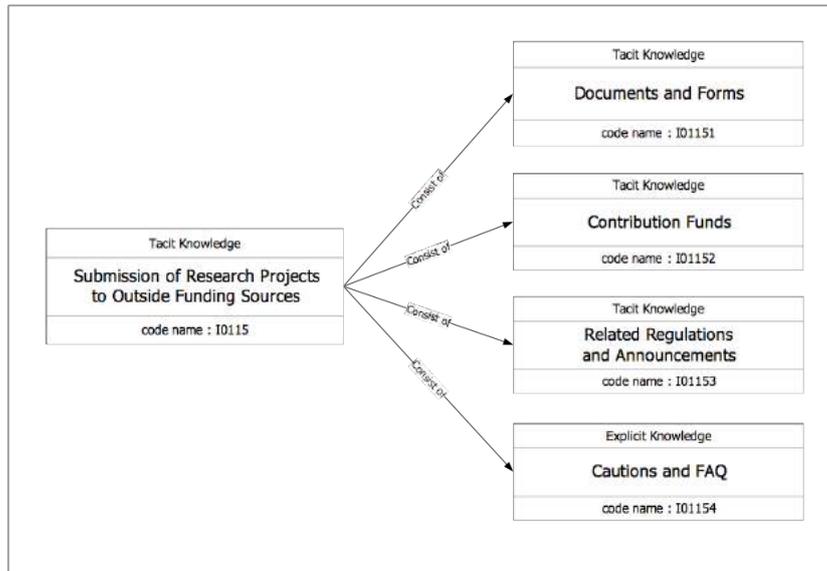


Figure 3 showed the 4 bodies of knowledge for the submission of research projects to outside funding sources as followed: (1) the documents and the forms (2) the amount of contribution funds (3) the related regulations and announcements (4) the cautions and the frequently asked questions (FAQ)

Figure 4 Inference Level Knowledge, Budget for National and International Academic Presentation

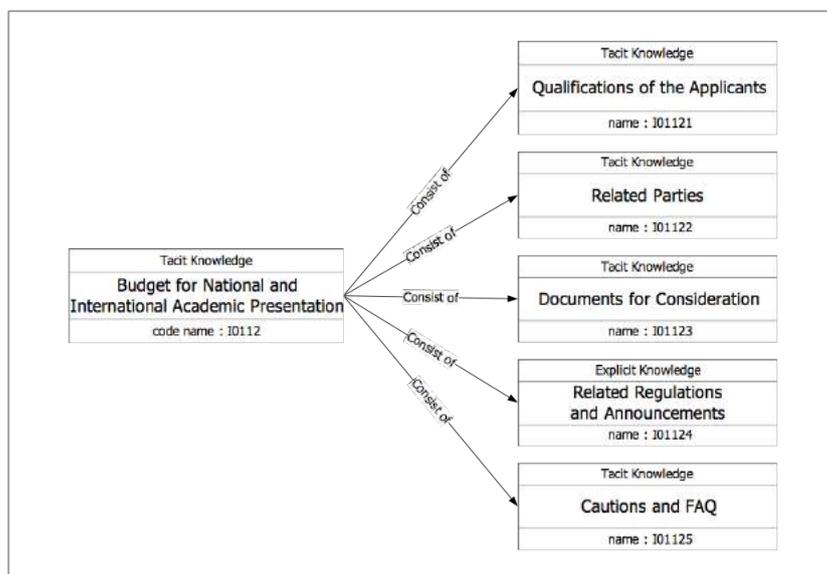


Figure 4 showed the 5 bodies of knowledge for the budget available for national and international academic presentation as followed: (1) the consideration of the qualifications of the applicants (2) the related parties (3) the documents for consideration (4) the related regulations and announcements (5) the cautions and the frequently asked questions (FAQ)

Figure 5 Inference Level Knowledge, Budget for Academic Publications

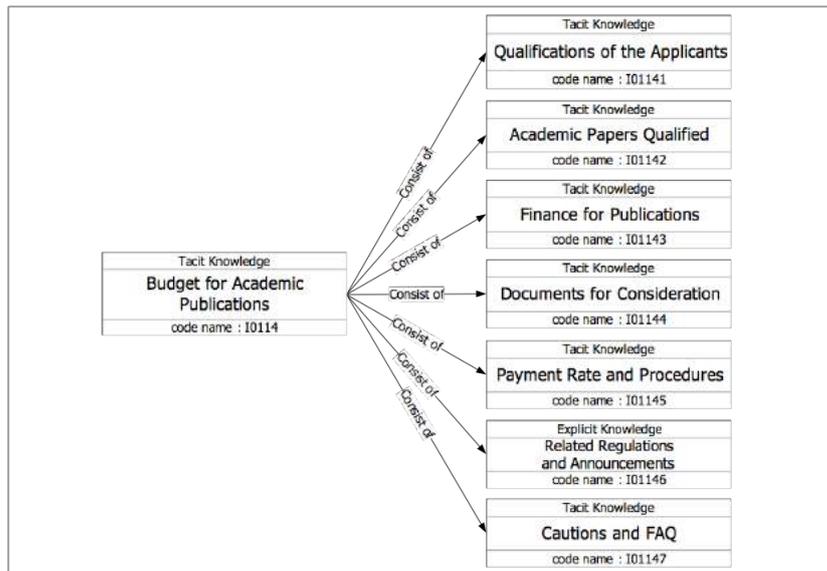


Figure 5 showed the 7 bodies of knowledge for the budget for academic publications as followed: (1) the qualifications of the applicants (2) the academic papers qualified (3) the consideration to finance the publications (4) the documents for consideration (5) the payment rate and procedures (6) the related regulations and announcements (7) the cautions and the frequently asked questions (FAQ)

5. CONCLUSIONS

The knowledge of the researchers and the lecturers regarding researching was at the intermediate level. The research unit should encourage the knowledge transfer of the 10 bodies of knowledge. The three bodies of knowledge with the most significance to researchers and lecturers were (1) the submission of research projects to outside funding sources (2) the financial aids for academic publications and (3) the budget available for national and international academic affairs. This study can be used in designing KMS to be the center of education, the knowledge creation, the knowledge forum, the knowledge storing, the knowledge sharing and the knowledge distribution for both Tacit Knowledge and Explicit Knowledge. In addition, this knowledge can be further developed to support the knowledge management and the organization's operation in the future.

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Monitoring Web Browsing Habits of User Using Web Log Analysis and Role-Based Web Accessing Control

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Abstract

Computer network in campus is an essential facility for education environment. The university network has provided knowledge accessibility to students. Students in undergraduate school sometimes get involve with many studying distractions, and use campus network in the wrong direction. Redundant connections in campus network as the main problem are challenging to overcome. The aim of this research is to measure the unfavorable web access habit of undergraduate student in campus computer laboratory room by capturing, and identify unwanted web connection from every connection from the room and to use the result of the first part to develop web access filtering algorithm to control the campus outgoing web connection. Role-based web accessing control (RBAC)^[6] model was used to filter the system and content-based analysis was used to measure the quality of each web. Firstly, the web quality keywords are set and extracted from web log by text mining algorithm. Then, the ontology of web quality keywords is created. The ontology of keywords makes more accurate controlling web access of students. We implemented and embedded algorithm into a web browser and running the experiment on nursing and software engineering students of Chiang Mai University. Students are assigned role for RBAC and task to search on specific contents. The embedded algorithm monitored their browsing and blocked unrelated web. It is found that the algorithm enables to check accessing web more accurate than keywords without ontology. The web, not related on given content, was blocked or limited accessing. In this research, we combine role-based web accessing control and content base monitoring to control web accessing of student in campus. The ontology of content keywords increases accurate blocking unrelated web. Ontology adds more semantic relation to keywords.

1. INTRODUCTION

Content browsing control in university's network is challenging in term of automate system design. It determines the browsing habit of students as target group. Inappropriate the Internet using mostly from this user group and the network traffic is dramatically rising. The web can be useful tool for gathering educational resources; although using the university limited network traffic resource in wrong direction will cause many consequent effects for instant, more network maintenance tasks, and more expensive operation cost to consider.

The major concern is to know what the user had been browsed under the university network, and how to determine which is good or bad website. There is difficulty for staff to square all computer log files around the faculty's lab machines. The age gap between staff and student has raised the other problematic issue as the browsing habit of student age is significantly different with matured staff.

The web monitoring system can be used to assist staff in gathering the browsing log from each machine, and analyze what type of the content of each page is. Staff can easily monitor student browsing habit by setting up the content category function to create a list of good website, or irreverent website, and use the list to design web filtering system as a final solution.

Role based access control (RBAC) ^[1] is access model, which use role as a bridge between subjects and privileges. It capable to managing access control up to large number of principals.

This paper will present benefit of RBAC, and an implementation on the web applies to work with the web monitoring system. We designed the web monitoring system by use context-based classification algorithm to categorize web content from the log using content keyword matching, the content will be provided from BHO's (Browser Helper Object) browser extension program to gather, and indexing the web log from target browser program on every computer laboratory machines, and stored it in system database. The result of this implementation is unwanted web black list, which ready for applying in the future design faculty's web filtering system.

2. RESEARCH METHOD

2.1 Web Content Categorization

The Web content categorization is based on content-based monitoring algorithm. The algorithm provides content analysis from monitored URL from target browser, using keyword-based technique analysis, the algorithm scans for matching with pre-defined keyword rules with content in each page. This project aims to design the categorization system in limitation of scope, which are as follows:

- Understand quality of content in each page
- Categorize types of content
- Propose flexible keyword, and rule manipulation
- Return final result as “Student”, “Staff & Lecturer”, and “Visitor”

Matching content with pre-defined group of website was the main propose of content analysis as illustrated in table 1 below. When the process completed the system is able to return result of content which already categorized to each group.

Pre-define Group	Good	Modulate	Bad
Game			✓
Entertainment News		✓	
Pornography			✓
Movie		✓	
General News	✓		
Wikipedia Content	✓		
Technology News	✓		
Travel Information		✓	
Facebook		✓	
Bit torrent			✓

Table 1. Example of Pre-define content group which might gain access from student in campus network

The group is instantly justified by rating marked as good, modulate, and bad in the first stage of analysis to understand and provide the weight score of each user activity; for example, page which has gaming content would be classified as “game” group and the game group has mark as “should be student” who using the browser in that moment. The “modulate” group refers to medium weight score and mark as “should

be anyone”. The result of this table will analyzed again with deeper layer of keyword to justify the final result in the next step.

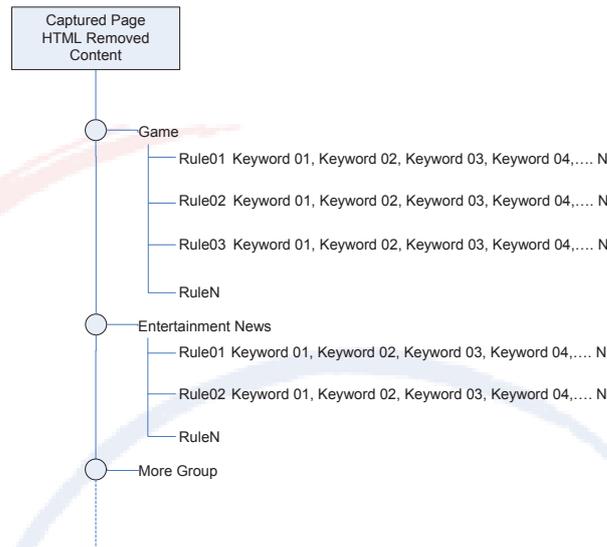


Fig. 1. Rule management for group categorization

Fig. 1 illustrates keyword in structure of categories, which separates and describes as a rule. User may need to select category of classification content to gain more accuracy of classification. The system is working more accurate with user browse to search for specific content, and obtusely keyword defines in to the classification rules. Some faculties, like nursing school and engineering school, are easily distinguished between relates and non-related content. The browsing pattern of student in school or campus of the mentioned schools would be easily predicted by using our technique. Furthermore, some rules can also design to capture fault statement that might appear in the same page, such as student searching for the operating system installation tips on one of famous computer forum. Some forum topics may have a heading looks involving with searching topic; however, the content may promote the products instead of providing right information. In this case we could use logic operator to control each rule and also can be able to control between keyword in the rule.

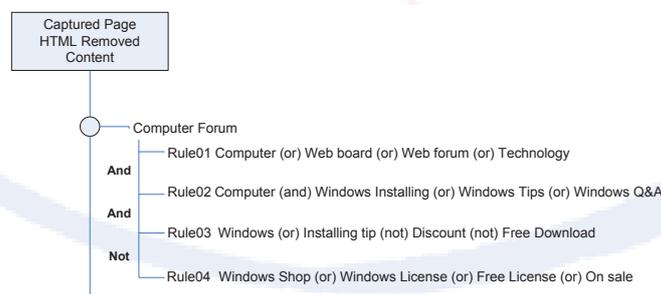


Fig. 2. Assigning logic operator between rule and inside rule

Using logical operator logic control between rules, the system has more flexibility, and increase more precise result^[3]. Fig. 2 shows rule creation possibilities when applying logical operator to control action between, and in inside the rules. We can

design various complex rules as user can predict what the captured page would be involved.

2.2 Rule-Based Access Control and Context Rule-Based Access Control

RBAC is model to control accessing to data or content for authorized users. RBAC can be categorized in many types. RBAC supports many constraint policies. There are different dimension of constraints in RBAC. The examples of constraint categories are ^[6]

- Static constraints that are constraint that evaluated on design state of RBAC model.
- Dynamic constraints that are constraint that tested on working state of RBAC model.

Not even static/dynamic constraints, they can be categorized as

- Authorization constraints are constraints which add more details for access control process. If users are granted
- Assignment constraints are constraints which control the election of permissions and roles to users.

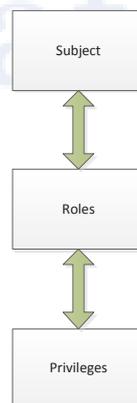


Figure 3. RBAC Relation ^[6]

RBAC provides a powerful mechanism for reducing the complexity, cost, and potential for error of assigning users permissions. Also, many policies can't be used by standard RBAC. Normally, access control base on identity of user or subject ^[5]. However, there is a dramatic change in technologies and knowledge.

Roles base server provides the privilege to categorize user as a ticket to verify at the web filtering system in final stage. The privilege from Roles base server was contained in secession, which will come along with user with in limited of session time.

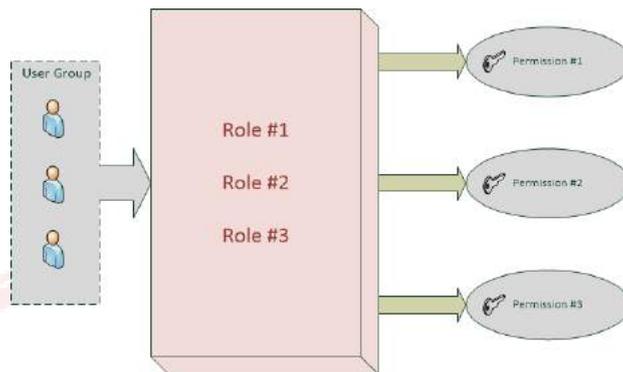


Figure 4. User and role to permission accessing in RBAC

Fig. 4 shows relation between user and permission, which assigned by role in RBAC [7], user is input as subject from Fig. 1. Acquiring role type from role server or service to gain permission, user group is also required to classify into the mentioned three different groups from the content-based classification system.

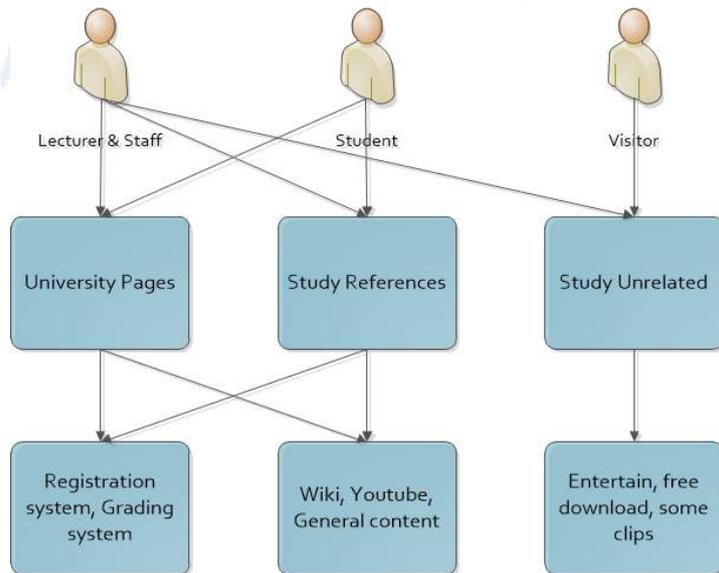


Figure 5. RBAC permission design for each user roles

The privilege assessment system performs in Fig. 5 shows example roles in each user, and accessing designs for suitable with each user group. Obviously, the most accessibility in the system is Lecturer & Staff group due to, this user group required wide area of work, and research, and on the other hand, student user group is only required to access into studying related activities, and some few of University web based study assistance pages. Entertainment and many download centers may filter for this user group, due to bandwidth consumption overload problem preventing.

3. RESULTS AND ANALYSIS

This paper was aimed to use this algorithm to learn about behavior of user who use computer network in campus. The model can predict different the Internet browsing behavior of users. It was intent to use the system with three different groups, as shown on table 2. The system considers individual user from start using the Internet and browsing page normally. URL that has passed through student's browser from schools proxy sync student log in for the first time, is recorded and analyzed.

Pre-define Group	Student	Lecturer & Staff	Visitor
Game	✓		✓
Entertainment News	✓	✓	✓
Pornography	✓		✓
Movie	✓		✓
General News	✓		✓
Wikipedia Content	✓	✓	
Technology News	✓	✓	✓
Office web pages		✓	
Facebook	✓	✓	✓
Bit torrent	✓		✓

Table 2. Final stage of user classification mapping result

The classification mapping table shows the way of defining content to user group based on role based control. The challenging of this experiment is context-based classification system, which shows more accurate result from distinguishing keyword. For example, game keyword can address clearly the same as pornography which have many specific keyword and easy to create classification rule, then passed on to role base system to assign role to each user group to handle in filtering system in the next step.

4. CONCLUSION

From all observation and experiments, it is very clear that the privilege assessment system perform its jobs to control access to group of web content-related to user group. This conclusion supports the idea to use the algorithm's result to control user-browsing habit. The study shows some major difficulties of process in the privilege handling, which attached with user from the authentication and capture all of required attributes to filtering system for acquired the appropriate accessing role.

However, it is not a complete experiment. Under simulation scenario, this study acquires briefly results within limited period of time. This experiment is able to

expand to bigger scale with implementing the filtering system which will applied the assigned roles from incoming request by reading the design secession. It is advisable to develop new techniques to reduce error close to zero as much as possible. Regarding to the framework, it is intended to membered???? this algorithm with bowser by using BHO (Browser Helper Object) to transfer captured data from user instead of our current method which need permission from network administrator, which is one of our research difficulties.

Finally we intend to use this experiment result as one of school web filter block list setting up criteria, which will be able to act in many blocking roles depending on user group. This would help network administrator to determine the unrelated and inappropriate web page more efficiently.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is surrounded by a large, faint, light blue circular graphic that is partially obscured by a red curved line on the left side.

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*Collaborative Feedback in a Blended Learning Environment:
A Case Study of an EFL Writing Class*

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Abstract

Collaborative feedback in a blended learning environment was studied to encourage learner-centeredness in the process of writing. The study aimed to: 1) examine how Thai university students perceived collaborative feedback activities when conducted in a blended learning environment; and 2) compare students' perceptions toward collaborative feedback through face-to-face and online interactions. The participants were 24 English minors and the instruments used were a questionnaire and the students' reflections. The reliability of the questionnaire was 0.81. The results revealed that the informants had high positive perceptions toward collaborative feedback activities both through face-to-face and online interactions. There was no significant difference between the two modes of delivery. The data obtained from the students' reflections also revealed that the informants preferred face-to-face interactions (41.67%) or both modes (45.83%). Only a few students (12.50%) preferred collaborative feedback via the online mode.

Keywords: collaborative feedback, face to face, online community, blended learning, hybrid learning, EFL writing

1. Introduction

In applying the writing process to EFL learners, students are expected to improve their writing through time, responding to positive feedback (Stanley 2002). Among types of feedback, peer feedback is one of the most common alternatives adopted (Lewis 2002). This type of feedback benefits both the peer writer and peer reader because peer students are more practical but less formal than teachers. As such, it is believed that peer feedback can encourage collaboration among student writers and help to develop a positive attitude toward writing (Rollinson 2005; Lewis 2002). Thus, peer feedback has received a great deal of attention in writing research (Kulsirisawad 2012; Getzlaf et al. 2009; Abu-Jarad 2008; Guardado and Shi 2007; Yang, Badger and Yu 2006; Min 2005; Wible et al. 2001; Tsui 2000; Tsui and Ng 2000; Hyland 2000).

However, undertaking peer feedback activities in a writing class is a challenge. It is time-consuming, and the quality of the feedback is dependent on different factors such as student characteristics, cultural issues and the teacher's role (Rollinson 2005). To overcome the challenge and achieve the most from peer feedback activities, Rollinson (2005) suggests an approach through collaborative peer group responses as an option. Also, many scholars in EFL writing contexts have put focus on feedback in blended learning environments (Ho and Savignon 2007; Liu and Sadler 2003; Braine 2001; Huang 1998).

This study, therefore, aimed to investigate students' perceptions after they experienced collaborative feedback in a blended learning environment. Theories underpinning the study are outlined as follows.

1.1. Collaborative feedback

The term *collaborative feedback* can have various meanings depending on how *collaborative* is defined. The definition proposed by Roschelle and Teasley (1995) seems to match the context of the present study. According to them, *collaboration* is "a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem" (p. 70). The term *collaborative feedback* in this study refers to activity in which students help one another to read and review their peers' drafts and provide feedback aiming at improving the quality of their writing.

Theoretically, collaborative feedback is associated with two sociocultural approaches: Vygotsky's Zone of Proximal Development (ZPD) and scaffolding (Rouhi and Vafafar 2011; Tsui and Ng 2000). According to Vygotsky (1978), novice learners can develop skills with support and guidance from skilled learners, and interaction with peers can help develop existing skills to higher levels. Through the support and guidance of novice learners, the ZPD is established. Within the ZPD, the teacher can encourage cooperative learning among students. Interactions with peers are believed to help develop students' learning skills and strategies (McLeod 2007). Along with the ZPD concept, the term *scaffolding* has also been introduced into the field. Wood, Bruner and Ross (1976) define the term as the "elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence" (p. 60). Scaffolding, therefore, is like assistance or support that helps the novice learner to complete a task. At a certain point, scaffolding can be removed when learners are able to master the skill or task targeted, and will be able to undertake or complete the task on their own.

1.2. Blended learning

According to Allan (2007), the increasing interest in e-learning in recent years has driven many academic practitioners to be more concerned about using blended learning in teaching and training. As implied by the name, this approach blends online learning with traditional methods

of learning and development (Kaye 2003). Blending widens learning opportunities as it incorporates the best constructs to meet specific requirements in terms of the available time, space and technologies of a particular group of students.

The advantages of blended learning include increased flexibility of learning and teaching approaches as well as increased enhancement of student engagement (Allan 2007). It also helps support all learning preferences and can provide a holistic model of personal development (Kaye 2003). Yet, a successful blended learning program depends on various factors, for example, institutions, teachers, students and pedagogic considerations (Stacey and Gerbic 2008).

In introducing collaborative feedback to students in a blended learning environment, some aspects of feedback activity should be taken into account. According to Higgins, Hartley and Skelton (2002), feedback aimed at enhancing students' cognitive skills and learning environment must be meaningful, of high quality, and timely. Schwartz and White (cited in Mory 2004, p. 776) also found that students expect feedback done in an online environment to be: 1) prompt, timely, and thorough; 2) ongoing formative (with regard to online discussions) and summative (regarding grades); 3) constructive, supportive, and substantive; 4) specific, objective, and individual; and 5) consistent. In addition, in assessing students' perceptions toward feedback, Strijbos, Narciss and Dünnebier (2010) focus on five aspects: fairness, usefulness, acceptance, willingness to improve, and affect. These aspects reflect content-related and social features of peer feedback.

2. Objectives and research questions

The main objectives of the study were twofold. First, the research aimed to examine how Thai EFL university students perceived collaborative feedback activity conducted in a blended learning environment. The second purpose was to compare the means of feedback delivery: through face-to-face interactions as opposed to through an online community.

In other words, the research attempted to answer the following questions:

- 1) What are the perceptions of Thai university students toward collaborative feedback in the blended learning environment of an EFL writing class?
- 2) Is there a difference between students' perceptions toward collaborative feedback through face-to-face interaction vs. online community interaction?

3. Method

1.1. Participants

The participants were 24 second-year English minors studying at the Faculty of Humanities, Srinakharinwirot University. Six of them were males (25%) and 18 were females (75%). They came from various majors such as tourism and hotel management, marketing, finance, history and geography. All of them were selected for the English minor program based on their academic background and their English proficiency test scores. In the second semester of the academic year 2012, they took the EN131 Basic Writing course as one of the requirements of the program.

1.2. Materials

Because both quantitative and qualitative data were required in the study, the instruments used to collect the data were a questionnaire and the students' reflections.

3.2.1 The questionnaire

The questionnaire was prepared to survey the students' perceptions. It consisted of four parts. In Part I, students were asked to fill in demographic information regarding their experience in paragraph writing, peer reviews, and blended learning environments. Part II, III, and IV were prepared to survey the students' perceptions on collaborative feedback: in a blended learning environment, through face-to-face interaction, and through online community interaction. Each

part covered 18 statements adapted from the Feedback Perceptions questionnaire of Strijbos et al. (2010). These statements were used to measure feedback perceptions in terms of fairness (items 1-3), usefulness (items 4-6), acceptance (items 7-9), willingness to improve (items 10-12), and affect (items 13-18). Items 9 and 16-18 were negative statements whereas the rest were positive. The questionnaire was originally constructed in English and was translated into Thai. Then three experts were asked to review both versions. A pilot study was conducted and the reliability of the perceptions questionnaire was .81 (Part II = .76, Part III = .85, and Part IV = .80).

3.2.2 Students' reflections

Reflection writing was another instrument used in this study. Students were asked to write a paragraph of approximately 100-120 words in response to a given background situation as follows:

In your study of EN 131 Basic Writing this semester, you have studied in class and participated in an online community via the ATutor system. One of the activities you have carried out both in class (face-to-face interaction) and in the online community has been collaborative feedback. You and your friends helped one another to revise written drafts—to read and review drafts. Considering this experience, if you could choose a method of giving collaborative feedback in an English writing class, which of the following would you prefer? Why?

- Face-to-face interaction in class
- Through an online community
- Through the use of both face-to-face interaction in class and online community interaction

1.3. Procedures

In the Basic Writing course of semester 2/2012, students were asked to write four assignments within a period of 15 weeks. For each assignment, students wrote four drafts and they were asked to do collaborative feedback activities on draft 1 and 2. Draft 3 was submitted to the teacher for proof reading, while Draft 4 was the final one. In draft 1, students were asked to focus on giving holistic feedback on content and idea, elements of a good paragraph, paragraph organization, and format. Draft 2 was for correction feedback in which the students were asked to pay attention to grammar and sentence structures. Students were informed at the beginning of the course that an e-learning course developed in ATutor would be used to support classroom teaching.

In developing a blended learning experience, the alternate modes of delivery proposed by Allan (2007) were applied. In the first two assignments, students were trained in giving collaborative feedback in both face to face and online situations. In the first assignment, the students were trained to give face-to-face feedback for two drafts of their assignment. Many feedback activities were introduced in class to enhance students' collaborative learning capabilities; group oral feedback, group written feedback, and blind author feedback were among them. In the second assignment, students were trained on how to give collaborative feedback via the e-learning course. In the online forum, they were asked to post their written drafts in a thread and the teacher asked every student to read and respond to the posted drafts within an assigned period of time. The teacher also posted instructions and suggestions as guidelines for peer review and demonstrated how to give online feedback. In the third assignment, students were asked to give feedback in the online forum where the teacher played the role of moderator and facilitator. In the last assignment, the students were asked to give feedback via the face-to-face approach in the classroom and the teacher assumed the same role.

At the end of the second semester, a questionnaire (Thai version) was administered to the students. In the final exam, one item was prepared to gather students' reflections. The students were asked to write a paragraph to reflect their thoughts toward the collaborative feedback activities they undertook in their classroom.

1.4. Data analysis

Descriptive statistics were used to analyze data obtained from the questionnaire. Demographic information was presented by means of frequency and percentage. Students' perception data were analyzed using mean and standard deviation tools. Higher scores indicate more positive perceptions toward collaborative feedback. The interpretation of the mean range in relation to the scale value was adapted from Chomeya (2006). To compare students' perceptions toward collaborative feedback through face-to-face interaction and online community interaction, a paired-samples *t*-test was used. Also, the data from the students' reflections were analyzed and coded to support the data derived from the questionnaires.

4. Results

1.1. Demographic information of the participants

Table 1 reveals the participants' background regarding their experience in studying English writing, peer reviewing, and using e-learning. About sixty percent of the students experienced studying English writing at a paragraph level before taking a Basic Writing course, and approximately half of the students (54.17%) never had peer review experience before. Slightly over half of the students (62.50%) never used e-learning to support classroom learning before, and two-thirds of the students (66.67%) favored using an e-learning course together with classroom teaching. Furthermore, half of the students participated in e-learning during the Basic Writing course of the academic year 2012 once a week while the rest used e-learning twice (41.67%) and three times a week (8.33%).

Table 1
Demographic Information (N = 24)

Question	Answer	<i>f</i>	%
1. Have you ever studied English writing in a paragraph level before?	No	9	37.50
	Yes	15	62.50
2. Before taking Basic Writing course at university, have you ever read and reviewed your friends' written work?	No	13	54.17
	Yes	11	45.83
3. Have you ever used e-learning to support learning in classroom before?	No	9	37.50
	Yes	15	62.50
4. In Basic Writing class of academic year 2012, did you like using e-learning in support to in- class teaching?	No	8	33.33
	Yes	16	66.67
5. How often did you use e-learning in Basic Writing class of academic year 2012?	Once a week	12	50.00
	Twice a week	10	41.67
	Three times a week	2	8.33

1.2. *The participants' perceptions toward collaborative feedback*

The participants' perceptions toward collaborative feedback in the blended learning environment of an EFL writing class are presented in Table 2.

Table 2
Perceptions toward Collaborative Feedback in a Blended Learning Environment

Aspects	<i>M</i>	<i>SD</i>	Interpretation
Fairness	4.61	0.75	highly positive perceptions
Usefulness	4.57	1.09	highly positive perceptions
Acceptance	4.74	0.91	highly positive perceptions
Willingness to improve	5.07	0.72	highly positive perceptions
Affect	4.94	0.73	highly positive perceptions
Overall perceptions	4.81	0.66	highly positive perceptions

Overall, the students had highly positive perceptions ($M = 4.81$) toward collaborative feedback in a blended learning environment of their writing class. The students had highly positive perceptions toward the collaborative feedback activity conducted in such an environment under

all aspects examined. The mean scores for each aspect (fairness, usefulness, acceptance, and willingness to improve) were 4.61, 4.57, 4.74, 5.07, and 4.94, respectively.

1.3. The participants' perceptions toward collaborative feedback through face-to-face interaction and online community

To compare the students' perceptions through face-to-face interaction and through online community interaction, both qualitative and quantitative data are described as follows.

Table 3

Perceptions toward Collaborative Feedback through Face-To-Face Interaction and Online Community

Aspect	Face-to-face			Online community		
	<i>M</i>	<i>SD</i>	Interpretation	<i>M</i>	<i>SD</i>	Interpretation
Fairness	4.74	0.71	highly positive perceptions	4.68	0.81	highly positive perceptions
Usefulness	4.81	0.81	highly positive perceptions	4.86	0.75	highly positive perceptions
Acceptance	4.78	0.75	highly positive perceptions	4.69	0.70	highly positive perceptions
Willingness to improve	4.99	0.71	highly positive perceptions	4.99	0.67	highly positive perceptions
Affect	5.01	0.73	highly positive perceptions	4.94	0.75	highly positive perceptions
Overall perceptions	4.89	0.61	highly positive perceptions	4.85	0.58	highly positive perceptions

Table 3 shows that the participants' overall perceptions toward collaborative feedback through face-to-face interaction and online community interaction was highly positive, with the mean score for face-to-face interaction being 4.89 and online community interaction 4.85. The mean scores for each aspect of face-to-face interaction (fairness, usefulness, acceptance, and willingness to improve) were 4.74, 4.81, 4.78, 4.99, and 5.01, and those for the online community interaction were 4.68, 4.86, 4.69, 4.99, and 4.94, respectively.

Table 4

Paired Samples Test of the Perceptions through Face-To-Face and Online Interactions

		Paired Differences					<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Face-to-face Online	.0347	.17477	.03568	-.0391	.1085	.973	23	.341

A paired-samples *t*-test was conducted to compare students' perceptions toward collaborative feedback through face-to-face and online community interaction. There was no significant difference in the two scores, perceptions toward face-to-face ($M = 4.89$, $SD = 0.61$) and via an online community ($M = 4.85$, $SD = 0.58$); $t(23) = .973$, $p = .341$. These results suggest that the students' perceptions through face-to-face and online interactions were not different.

The data from the students' reflections were analyzed as shown in the findings below. When asked to choose their favored method of collaborative feedback in a writing class, the students provided data as shown in Table 5.

Table 5
The Student's Preferred Modes of Delivery for Collaborative Feedback in a Writing Class

Mode of Delivery	<i>f</i>	%
Face-to-face interaction	10	41.67
Online community	3	12.50
Both	11	45.83
Total	24	100.00

The results show that a majority of the students preferred either face-to-face interaction (41.67%) or both (face-to-face and online interactions) (45.83%). Only 12.50% of the students favored collaborative feedback solely through online community interaction.

Excerpts from the students' reflections are illustrated as follows:

Face-to-face interaction

Face-to-face interaction in class will help you make new friends. This way you have to communicate to all of your classmates in giving feedback. It will make you know each other better.

(Student A, tourism and hotel management major)

If my friends don't understand about my feedback, I can explain it clearly than online community.....Finally, I don't have more homework. If we give feedback through face-to-face, we don't have to do it again in online community, so we don't have more homework.

(Student B, finance major)

Online community

There are more details in online community feedback. Your classmates have enough time to review your work carefully.

(Student C, finance major)

In online community, your friends dare to reveal the truth. They can give more their opinions than giving feedback by face-to-face.

(Student D, finance major)

The students also provided examples of benefits and drawbacks in their writing to support their claims. Conducting collaborative feedback through face-to-face interactions is more convenient and user-friendly as students can get prompt responses from peers. They can also get clearer feedback and develop stronger bonds among peers. However, some students may have problems with reading their peers' handwriting while some may not feel comfortable commenting on a draft in front of their peers because they are afraid of losing face or feel embarrassed. For the

activities in the online community, the students expressed the opinion that giving feedback online is convenient and user-friendly as they can give/receive feedback anywhere and anytime. They can also get more detailed and better quality feedback as their peers have more time to review drafts. Besides this, they feel more comfortable expressing ideas and comments on drafts without confronting classmates. Still, students may encounter technical or IT related problems and misinterpret the feedback as it is difficult to ask for clarification of feedback online.

With benefits and drawbacks to both modes of delivery, many students suggested doing collaborative feedback both face-to-face and through via online community interaction. They thought that they could gain benefits from both and each could complement each other. Some of their reflections are shown in the following excerpts:

I believe that the best way to learn English is to use various activities.

Collaborative feedback through face-to-face interactions and online community has its own advantages and disadvantages. If students use both, they may gain more effective feedback. Each can make up for the disadvantage of the other.

(Student F, history major)

Students can meet together only one time a week but online community can offer more time for feedback....In class we can give and receive feedback right away, but conducting peer review via online community is easy and comfortable.

(Student G, marketing major)

It offers more choices of giving feedback, so the students may feel more enjoyable about the course.

(Student H, geography major)

5. Discussion and conclusion

This study investigated Thai university students' perceptions toward collaborative feedback in a blended learning environment. It was aimed at examining how students perceived collaborative feedback activities, and comparing their perceptions through face-to-face and online interactions. The instruments used were a questionnaire and the students' reflections. The findings showed that the students had highly positive perceptions toward collaborative feedback activities in all aspects. They perceived that the collaborative feedback done was fair and useful in improving their writing. They accepted the feedback and were willing to improve their draft with comments from peers. The students also felt highly positively toward doing collaborative feedback. When the students' perceptions through face-to-face and through the online community were compared, the findings revealed that they had highly positive perceptions toward both and there was no significant difference between the two modes of delivery. The qualitative analysis corroborated the results obtained from the questionnaire to the effect that most of the students preferred conducting collaborative feedback either through face-to-face interaction or via both face-to-face and online modes of delivery. However, only a few students preferred having collaborative feedback solely through online community interaction.

These findings correspond to many studies. Huang (1998) and Ho and Savignon (2007) also found that the students preferred face-to-face peer review to computer-mediated peer review in EFL writing, and Braine (2001) found that students gained more benefits from traditional classes in EFL writing class than via computer-mediated classes. They perceived face-to-face interaction to provide an environment in which they could get clearer feedback and this mode of delivery to be suitable for their social interactions. As Ho and Savignon (2007) explain, as peer review is a highly interactive activity, oral communication is necessary and more effective than written

communication. The online community, on the other hand, offers a comfort zone for uneasiness caused by personal or cultural concerns. Students tend to feel more comfortable in expressing ideas/comments on a draft without confronting peers. Hartmann (2002) also found that students experienced cultural and identity issues that affected their L2 writing. However, more research is needed for explanatory purposes as there might be other factors affecting students' perceptions and preferences. As Lai (2011) remarks, a number of factors may moderate the impact of collaboration on student learning. These factors could include student characteristics, group composition, and task characteristics. The overall results of this study are also in accordance with the findings of Rouhi and Vafadar (2011) who have found that collaborative feedback helps boost students' ability within their ZPD, as well as promoting cooperative activity, mutual scaffolding, consciousness-raising, and social meaning-making process.

As far as pedagogical implications are concerned, it seems clear that EFL writing teachers should pay attention to two issues when introducing collaborative feedback activities in a blended learning environment. First, they should make sure that students understand the purpose of the collaborative feedback activity in question and should have a clear plan of activities. In order to have students acquire skills in giving feedback, teachers should also focus on scaffolding. As Hyland and Hyland (2006) point out student training is one important factor in determining the success of peer review activity. Teachers, therefore, should plan adequately and spend enough time on training students to provide collaborative feedback. Also, they should recognize their roles in the training process. Second, to form a blended learning environment, teachers should plan ahead and have clear procedures. The environment should be supportive and user-friendly so that students can stretch their learning abilities within their ZPD. Students' motivation and engagement are also a challenge in the online environment. As Kaye (2003) explains creating a blended learning environment takes time and patience. It is recommended that teachers start with a traditional classroom environment before linking collaborative feedback activities to an online community. The face-to-face mode can be used as a major platform for collaborative feedback training whereas the online community mode offers more learning choices for students. When the online mode is used to support the face-to-face mode, students can gain more advantages from both.

This study was conducted against the background of some limitations. First, it was an exploratory study of collaborative feedback in the blended environment of an EFL writing class. The results, therefore, cannot be generalized to all EFL writing classes. Second, the instruments used in this study were a questionnaire and students' reflections. The results drawn from these tools may not cover every aspect of students' perceptions. A face-to-face interview could be added in order to gather more in-depth data. Third, this study focused only on the perception of the students toward collaborative feedback. Further studies should be done on the quality of students' writing after the collaborative feedback activity. As the results also indicated the students' preference toward collaborative feedback via the use of both modes of delivery, further studies may focus on utilizing this dual approach. In addition, since this study yielded positive results toward collaborative feedback in a blended learning environment, more research should be conducted in this area and more factors related to collaborative feedback should be taken into account and studied.

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The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is surrounded by two large, overlapping, brush-stroke-like arcs. The upper arc is light red and the lower arc is light blue, both curving around the central text.

iafor

APPENDIX

The Feedback Perceptions Questionnaire

Statements	Not true at all						Completely true					
	1	2	3	4	5	6	1	2	3	4	5	6
1. I think the feedback is fair.	1	2	3	4	5	6	1	2	3	4	5	6
1. I think the feedback is justified.	1	2	3	4	5	6	1	2	3	4	5	6
1. I think the feedback is reasonable.	1	2	3	4	5	6	1	2	3	4	5	6
1. I think the feedback is helpful.	1	2	3	4	5	6	1	2	3	4	5	6
1. The feedback helped develop my writing skills.	1	2	3	4	5	6	1	2	3	4	5	6
1. The feedback provided me various ideas for my writing.	1	2	3	4	5	6	1	2	3	4	5	6
1. I agreed with feedbacks from peers.	1	2	3	4	5	6	1	2	3	4	5	6
1. I used the feedback to revise my writing.	1	2	3	4	5	6	1	2	3	4	5	6
1. I didn't use the feedback in the revision of my writing.	1	2	3	4	5	6	1	2	3	4	5	6
1. I was willing to improve my writing.	1	2	3	4	5	6	1	2	3	4	5	6
1. I was willing to invest a lot of effort in my revision.	1	2	3	4	5	6	1	2	3	4	5	6
1. I was willing to work on further text revision assignments.	1	2	3	4	5	6	1	2	3	4	5	6
1. I felt satisfied when I received the feedback on my revision.	1	2	3	4	5	6	1	2	3	4	5	6
1. I felt confident when I received the feedback on my revision.	1	2	3	4	5	6	1	2	3	4	5	6
1. I felt motivated when I received the feedback on my revision.	1	2	3	4	5	6	1	2	3	4	5	6
1. I felt dissatisfied when I received the feedback on my revision.	1	2	3	4	5	6	1	2	3	4	5	6
1. I felt uncomfortable when I received the feedback on my revision.	1	2	3	4	5	6	1	2	3	4	5	6
1. I felt discouraged when I received the feedback on my revision.	1	2	3	4	5	6	1	2	3	4	5	6

Development of Teach by Social Networks of Student

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0679

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Abstract

The objectives of this research were (1) to compare the achievement of students' learning through Social Networks ss (2) to study the students' recommendation of studying through Social Networks ss.

The sample of this experimental research was 60 students in Communication Research Course, Bansomdejchaopraya Rajabhat University, 1st Semester, Academic Year 2555/2012. The 30-student random sampling group taught through Social Networks ss, and the control group of 30 students without learning through Social Networks ss. The data were analyzed by basic statistical averaging, the variance of the scores and t – Dependent.

The results were as follows: 1) the compared study of achievement scores between the experimental group taught through Social Networks ss and the control group were not significantly different in moral achievement, the achievement scores of knowledge were not significantly different, the achievement scores of cognitive skills were statistically significant at the .05 level, the interpersonal skills and responsibilities of different levels of statistical significance at .05, and analytical skills, numerical, communication and information technology is statistically significant difference, 2) the students' recommendation of studying through Social Networks ss, found that 17 students through Social Networks ss had not any comments, 7 students wanted to develop a model of the video www.youtube.com. Lastly, 6 students wanted every course developed through internet networks.

Keyword: Teaching Development , Social Networks ss , Student

Introduction

The history and importance of the problem.

Education is at the heart of the people, which has been developed to meet the targets and educational achievements. Happy Social life has to be improved by qualified teaching and learning which depend on people as teachers and those involved in the study. This would require a study of the curriculum in the education criteria, and how to correct and be appropriate. The development of teaching and the quality education should be a required condition of the reality of the participants to the course, what with the participants, there will be a technical way to improve the participant how to make high-quality and effective learning in life. The national education development plan volume 8 (1997-2001). Discusses the essence in the learning process that focuses on student-centred, focus on the development of the full potential of the people according to the. Full of right-handed and attention, and can provide learning atmosphere to occur in every time and every place, and has been cooperating with parents and the community to participate in the development of learners who have knowledge can be good people with integrity, and be able to perform live together happily. Study on the quality management process requires the evaluation of actions every step of the educational management information system and the data updates policies and assign objectives to guide the operation of the education system, the quality.

Social media has a variety of ways, whether it is a photo sharing, location sharing, inspiration. news information sharing, out to the public, and who brought it to use as they allow, and not least, the brand, or the various interest groups, they began to build their own Social Networks ss and social media is not only in the area of organization ideas. Suggested knowledge Experience the new birth of learning organization and learning together at all times, it is better than using an external online media. Web blog-news and product darn Board which will make everyone in the organization knows the story of the various factors operating tips to solving anything problem with innovative new ,news on the various factors to the knowledge on this subject more, they discover from a repository of knowledge in the company may be transferred from the company's own experts, but should not be used to talk to gossip or argue instead of private conversations, but should be in a joint opinions on the issues. Guidelines, technical advice, should not be limited to the Department itself. All people outside or different jungle measles update as the progress at any time, regardless of whether it is social media video, it will be part of the participation to learn together, and at any time.

Research in the classroom (Classroom Action Research: CAR) is an innovative research to develop the learning of the students in the class, based on the format of the research action (Action Research) with the model quality (Quality Model), called the research performed in the classroom according to the quality model which has introduced the concept of continuous quality improvement P-D-C-A quality QC Circle activities, 7 quality tools and 7 extended QC story used the concept of operating research P-A-O-R and the model developed to conduct research in the classroom.

Therefore, Researchers are interested to study "Development of Teach by Social Networks of Student" that the reality Social Networks ss can enhance knowledge and understanding about teaching and learning to the students.

Objectives of the research:

1. To compare the achievement of students' learning through Social Networks ss.
2. To study the students' recommendation of studying through Social Networks ss.

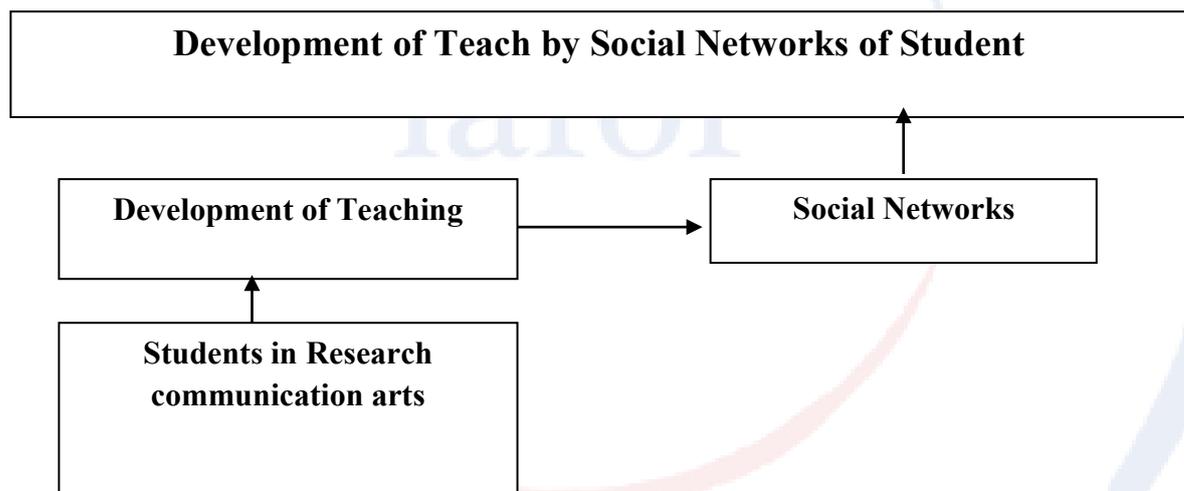
Specific terms

Development of teaching means to improve the teaching and learning activities of the courses. Communication Arts, research achievement and interest in learning of mathematics. Research communication Arts highly

Social Networks s in a way that better represents the multimedia group of students learning mathematics. The communication arts to share research data communication via the Internet, using Facebook

Achievement of the learners knowledge level refers to the ability of learners to learn under the research environment. The result of the test content management system by way of learning as a tool to support learning activities.

Conceptual research framework.



Conceptual research framework

The benefits expected to be obtained:

1. place the achievement of students through the learning through Social Networks s
2. allow instructors know the guidelines in order to improve teaching and learning through Social Development Network.
3. do the relevant authorities, including the Ministry of Education Commission on higher education, national education and research data can be applied to guide the planning, development, improve teaching and learning through Social Development Network benefits.
4. other relevant experts, including researchers, academics, can bring the data from the studies to form the basis for the required research.

How to research.

Studies on improving teaching and learning through Social Networks in the research trial. (Experimental Research) for a comparative study on achievement of learners through learning by using Social Networks and to study the suggestions of participants regarding lessons taught through Social Media Network. Researchers have conducted using the methodology of research, which consists of. Population and sample in the research. Tools used in the research. Data collection, data analysis and presentation of data and results of research by researchers presented the results of data analysis in the form of a table and lecture.

The target population for this research is a student in mathematics. Research communication Arts home study group, Bansomdejchaopraya Rajabhat University D6 1st semester academic year 2555 (2012) 60 people using specific selection method (Purposive Sampling).

Samples in research Samples in this research study are samples used in the lessons taught through Social Media Network is a group that tried to view the appropriate about. Frame the content of the lesson by using carefully selected samples from students in courses. Research communication arts, Bansomdejchaopraya Rajabhat University, 1st semester, academic year 2555/2012. 60 people using specific selection method (Purposive Sampling). A sample is a student in mathematics. Research communication arts students group D6, Bansomdejchaopraya Rajabhat University, 1st semester, academic year 2555/2012 the number of people 60 and 2555 (2012) how a simple random sample (Simple Random Sampling) to compare with samples that are used in the lessons taught through Social Media Networks by using the selected method with a simple sampling method (Simple Random Sampling). The number of 30 people. As the samples used in the lessons taught through Social Media Network is a group of experiments that used Social Media for teaching lessons through the Network, and the lottery. 30 people as a group, for example, not using the lessons taught through Social Media Network is a control group that does not use Social Media for teaching lessons through the Network.



Creation tools used for collecting data in this research include media, teaching lessons, Social Networks s Research Department of communication arts, with the content in each section: this is the lesson, using Social Networks s mathematics instructional media. Research communication Arts as the following steps:

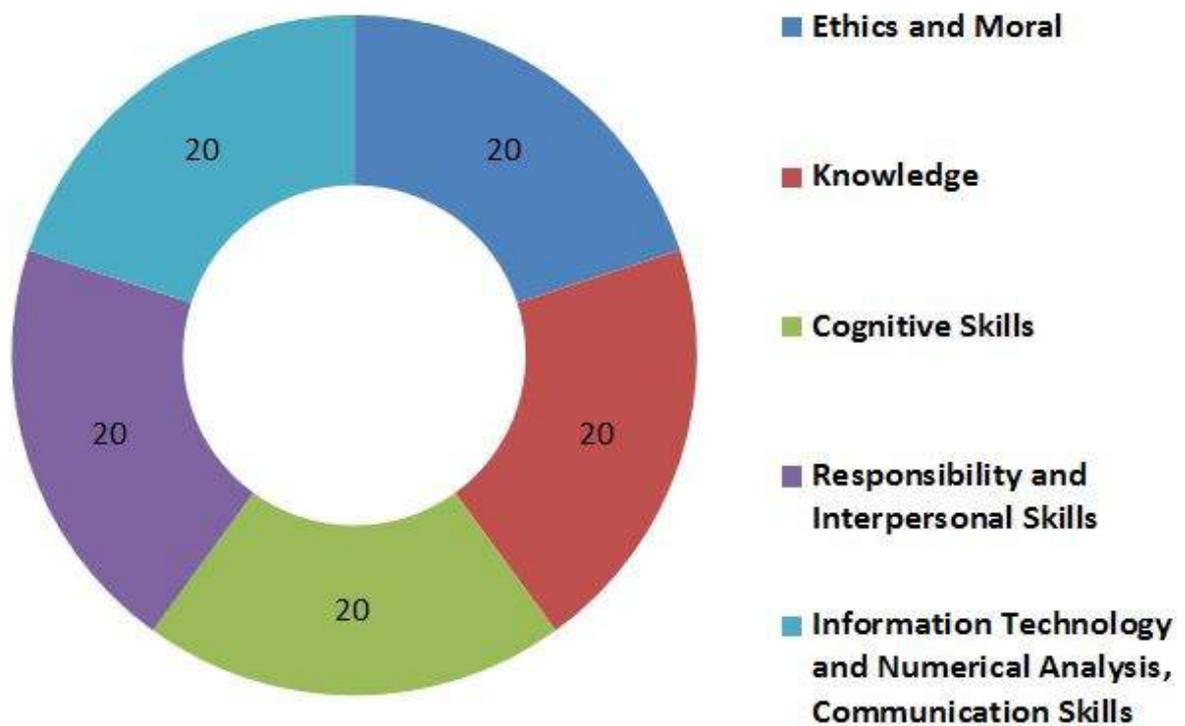
1. Step by step lesson design (Design) in the process of this design is to take aim and course description analysis to make breaks and intend to provide participants with knowledge, attitude, ability and experience to learn the lesson by dividing the given learning units divided into units to study and define the strategic objectives of each unit, in accordance with the proposed contents.
2. Steps to developing the content on Social Media Networks to choose the program to prepare lessons by selecting the appropriate program with students in a preliminary response to the need to develop lessons using teaching materials and programs that use the Facebook by creating a Social Media Group (Groups) on a Network by using Facebook application, students participating in trials as a group in a group in order to bring the content of the courses. The research proposed in the communication arts.

A test analysis of the purpose of each unit of study materials are included, assign weights, and child behaviour to the test. For the behavior that is used to measure the effect to learning from such subjects. By then, there will be 5 quizzes based on the standard framework of national qualifications, higher education levels determine the learning outcomes that are expected graduates with at least 5 aspects as follows:

1. Ethics (Ethics and Moral) refers to the development of the habit in moral conduct, ethics and responsibility in the global nor. The ability to adjust their way of life in the conflicts of values. Develop the habit and according to morality in private and social matters.

2. Knowledge (Knowledge) refers to the ability to understand. The idea and the presentation of data. Analysis and characterization of the facts. The theory, as well as various processes and be able to learn manually.
3. The intellectual skills (Cognitive Skills) means the ability to analyze a situation and use the knowledge and understanding of concepts. Theoretical principles and processes in problem solving and analytical thinking. When faced an unexpected new situations before.
4. Human relations skills and responsibility (Responsibility and Interpersonal Skills). Refers to the ability to work as a group to represent the leadership responsibility for ourselves and society. The ability to plan and be responsible for In their own learning.
5. The numerical analysis skills. The communication and use of information technology (Information Technology and Numerical Analysis, Communication Skills) refers to the ability of numerical analysis. Ability to apply mathematical and statistical techniques, the ability to communicate in both spoken. Writing and the use of information technology.

The Standard Framework of National Qualifications



By brought lessons taught through Social Media Networks, and a trial test with a group of students who have passed the course of academic research information communication Arts: 10 people to measure achievement and validation of the contents.

To collect the data. Researchers will take a quiz that tested and corrected already. To continue to collect information, researchers have conducted test measuring achievement of the evaluation group. Lessons taught through Social Media Networks and the control group do not use Social Media for teaching lessons through the

Network of 60 people during day 1-September 27, 2012, and then put all the data into statistical analysis.

An analysis of the data is selected in the use the following basic statistics: statistics. Averaging calculate from the formula (Ferguson. 1981: 49) and the variance of the score. Calculate from the formula (Ferguson. 1981: 68) statistics that are used to analyze the data in order to compare the average achievement of the evaluation group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network by using a t-Dependent in order to compare the average score, achievement of the evaluation group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network by using a t-Dependent.

Main Body

The research results

Research subject. Improving teaching and learning through Social Networks s gives that achievement scores of experiments with the development of teaching and learning through Social Networks s had higher average scores. There are no control groups, the development of teaching and learning through Social Networks s on ethics in knowledge of numerical analysis skills. Communications and information technology, there is no statistical significance. Part of the skill, intelligence and human relations skills and responsibilities significantly .05 level of statistical development, teaching and learning through Social Networks s. Achievement scores can be added to either the ethics 5 the knowledge, skills, intelligence, skills, human relations skills and responsibilities of numerical analysis. The communication and use of information technology, the details are as follows:

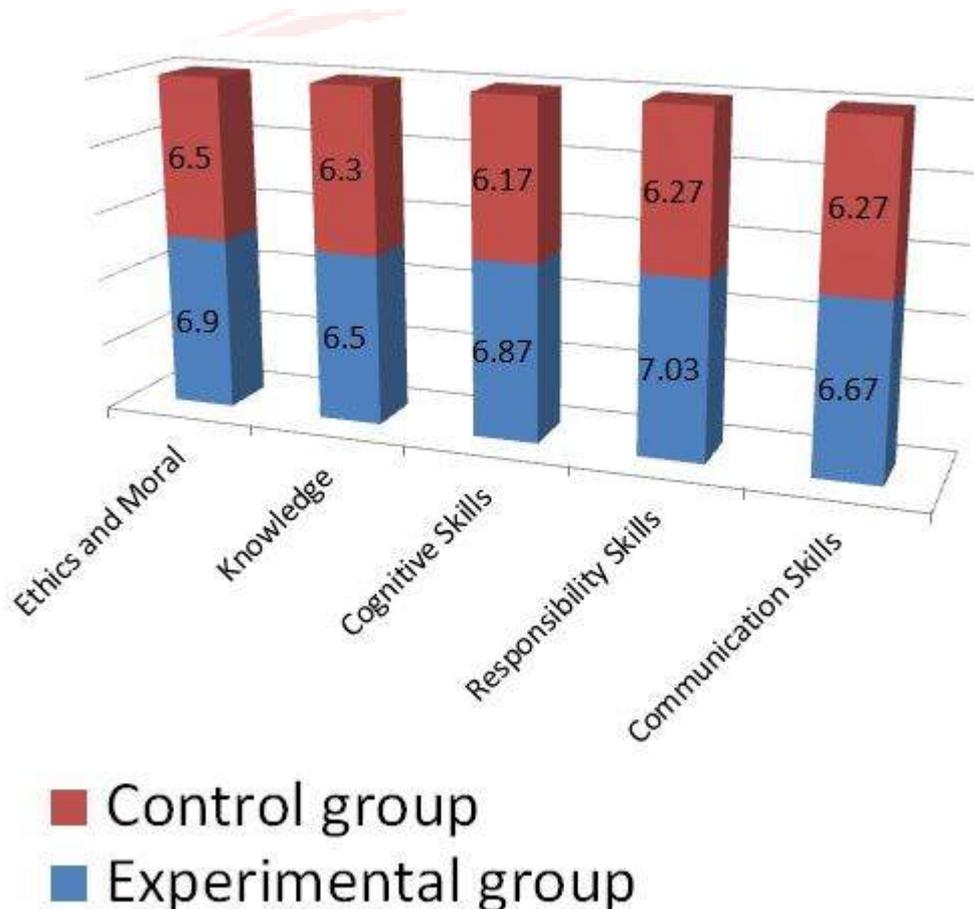
A comparative study on the achievement score ethics trial group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network has the achievement scores of different ethics, there is no statistical significance.

A comparative study on the achievement score for knowledge of the trial group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network has rated the achievement of different knowledge, not statistical significant.

A comparative study on the intellectual skills achievement score of trial group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network with intelligence skills achievement scores vary significantly at the .05 level of statistical.

A comparative study on achievement of skill points to the relationship between the individual and the responsibility of the evaluation group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network has rated the achievement of skills, human relations and responsibilities differ significantly at the .05 level of statistical.

A comparative study on achievement scores, skills, numerical analysis. Communication and information technology of the evaluation group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network has the skills achievement score of numerical analysis. The communication and use of information technology are different, there is no statistical significance.



Suggestions of participants regarding lessons taught through Social Media Network, which results in the research, it was found that the students experiment with group lessons taught through Social Media Network has not commented on the recommendations. 17 people also is eager to develop the lesson format video in www.youtube.com 7 people all ranks, finally there are courses on teaching and learning, development, networking, Internet. The number 6 people.

Discuss the results.

1. In a comparative study on achievement of learners through learning by using the Social Networks s, in which the research results found.

A comparison of the achievement score of ethics trial group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network has the achievement scores of different ethics, there is no statistical significance. To see how a trial group. Lessons taught through Social Media Network has rated the ethics achievement scores than the control group that did not use the lessons taught through Social Media Network. This is consistent with

Thawatphong Pitak (2009) study. Using Social Networks ss to increase the effectiveness of the content management system. The results found that the assessment of achievement of the user. I found that the average score of the examination of the system user 1, user 2 is higher than in the two groups.

A comparison of the achievement score for knowledge of the trial group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network has rated the achievement of different knowledge, statistical significance was not consistent with the Jaturong Laohapensang (2006) study. Study on management model system of E-Learning along the learning through problems. Confine research, it was found that the results of a comparative study on achievement before and after learning of the students learning from the lessons of online courses. Industrial designs 6 found that effective learning after high school than students after the first statistical significant level of .01 students learn through tutorials online. Department of industrial design, with six researchers have developed there is satisfaction with the teaching model of management system of E-Learning along the learning through problems. Higher education level is in a good level.

A comparison of the achievement scores of intelligence evaluation skills. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network with intelligence skills achievement scores vary significantly at the .05 level statistics consistent with the Siewakorn, Keawrat (2003) study comparing the achievement and durability to learn fundamental microprocessor based teaching through the Web with normal teaching for undergraduate students at Rajabhat Institute. 42 people by a specific random (Purposive Sampling) and a simple random sample (Sample Random Sampling) random students into trial groups by teaching through the Web. The number of people in the control group and 21 schools from teaching the usual number of 21 people, research achievement and durability in the learning of students who learn by using the taught over the Web with normal teaching differ significantly at the .05 level of statistical.

A comparison of the achievement of skill points, the relationship between the individual and the responsibility of the evaluation group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through Social Media Network has rated the achievement of skills the relationship between individuals and the responsibilities of different statistical significant level of .05, which is consistent with the Butler (1991) have done studies for teaching and classroom collaboration and student manual to your computer. To test your ability to solve the problem of grade 6 students to teaching and learning with computers, students formed another achievement, educational goals differ from those taught by classroom collaboration. The use of collaborative learning method in teaching From the experiment, a group of students with a group of self teaching classroom participation by testing the solution before and after studying two groups found that the experimental group with internal layers of interaction with skills in problem solving decisions, better control groups significant statistical.

A comparison of the achievement score of numerical analysis skills. Communication and information technology of the evaluation group. Lessons taught through Social Media Network and a group of controls that do not use the lessons taught through

Social Media Network has the skills achievement score of numerical analysis. The communication and use of information technology are different, there is no statistical significance consistent with Kawchanok Kawchatchawan (2003) study adaptation and mental health by using the taught over the Web with normal teaching for undergraduate students, Faculty of educational sciences, KhonKaen University. Research achievement by teaching through the Web with normal teaching differ significantly at the .05 level of statistical.

2. In the section of the suggestions of participants regarding lessons taught through Social Media Network, which results in the research, it was found that.

Students experiment with group lessons taught through Social Media Network would like to develop the lesson format video in www.youtube.com and he wants to keep all the courses are developing teaching materials on the Internet in accordance with the Boyd (2008) study. Why are teens so love Social Networks sing sites: the role of the public network that has continued to take the lives of teens (Why Social Networks s Sites, [Heart] Youth: The Role of Networked Publics in Social Life Teenager) found that adolescents with attention to Social Networks sing sites work because there is a pattern and how to use the appeal? Can make a lot of people to meet and to benefit any way? Like the communication to seek a lover by what is regarded as the heart of Social Networks sing sites is the resume writing to introduce ourselves. To create a society with friends and post comments and as a public network, the perimeter of the network and meet with other people. In addition, Social Networks sing sites, it helps in displaying the identity or the identity of the self, to let others get to know through a creative look Web site in accordance with its own needs. Can tell a story or write a diary, someone commented that all the activity occurring on the network, the communication culture of teenagers has changed completely from the original? And also in accordance with Matthew and Varagoor.(2001) research regarding the response of participants to the online lessons (Student Response to Online Course Materials) with students at the graduate level, from which to collect and analyze various effects. About success in school and work order through the Internet, I found that most of the participants are experienced and good sense in the use of the Internet and learning through tutorials online. It also corresponds to the c bit and swipe the innovative and Seagren Watrood. (1997), the study found that when technology is changing the necessary education to keep up the pace of change so that the process of teaching and learning, they must be related. Electronic instruments Institute is a network of sources of information, rather than just places including there must be networking to learn how to improve the quality of education as University of Nebraska Lincoln.As part of the PhD-level teaching and learning has been designing and managing teaching and learning by using network computers and learning program with a discussion of the issues and answered questions for students, and there is mutual interaction. While the teacher will guide the students to Exchange and dissemination of knowledge as well.

It also corresponds to the Schneider (1999) has made a study of teaching model on the Internet and found that providing teaching and learning materials on the Internet is an environment that promotes learning, that knowledge and understanding are organizing device to promote the knowledge of the structure of knowledge according to the proper environment and also comply with local Schoroeder (2005) study. Online learning about news and research (Online Learning Research and Blogging News), with the concept that learning network could coordinate time (Asynchronous Learning Networks) As the challenge of the fast of the learning process, technology and the

environment. As Research Director of the unit, promote and develop technologies at the University of Illinois at Springfield's study has recommended that personnel in the Joint Committee to develop and use the tools that is useful in the use of various information sharing in case study research. Researchers have described about the processes and tools that are used to filter what people in the us have a common interest. By using Web technology blog, or blog is a tool for distributing information to all members, as well as others. The results showed that a block to collect demand information to the members of the organization. Produces useful and user satisfaction and efficiency in collaboration of Web blogs and comment systems can also be used as a way to communicate within the institution that has a lot of burden.

Suggestions:

1. There should be education. Improving teaching and learning through the Social Networks ss to compare achievement of theoretical courses and practical courses.
2. Studies should be performed. Improving teaching and learning through a Social Networks ss in a long-distance teaching.
3. There should be education. The factor that makes the achievement of the development of teaching and learning through Social Networks ss

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is partially overlaid by a large, faint watermark of a circular graphic with a red and blue gradient, which is also centered on the page.

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Effect of English Visual Presentation in Second Language Class

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Abstract

The recent years, a great tendency towards the use of technology and its integration into the curriculum has gained a great importance. Particularly, the use of visual things as and an each student's presentation in second language classrooms has grown rapidly because of the increasing emphasis on communicative techniques. And it is obvious that the use of visual presentation is a great help for second language students in stimulating and facilitating the target language. The purpose of this article was to examine the effect of using visual presentation for second language students so that they can make use of visual things efficiently in the classroom. The process of this article examines the effectiveness of visual material in second language grammar comprehension, the ability of four corners (speaking, listening, writing, reading) among beginning and intermediate-level English learners. In particular, it investigates the relative efficacy of using visual material with text. The Study's focal issue is to prove is most effective in aiding grammar for four corners' acquisition in one semester.

Key words: PowerPoint, learning, attitudes, visual material, four corners, confidence

INTRODUCTION

The purpose of this paper is to provide basic, comprehensive information to assist my students in developing effective presentations. The use of visual aids, coupled with good public speaking skills, work hand-in-hand to create effective presentations. My student's speaking style and stage presence are personal talents that they're going to grow up with much practice and experience. Each aspect of effective presentations, however, could not be detailed in this paper. Instead, much emphasis is given to visual aids which are essential to all successful presentations. So I try to show the effective presentation method and I emphasize the importance to give opportunities to each of them.

This study investigates whether PowerPoint presentations (a form of multimedia) improve student learning and attitudes for their confidence. While the use of PowerPoint and multimedia in the classroom has significantly increased globally in recent years (Connor and Wong, 2004; Bartsch and Cobern, 2003), few studies have systematically investigated its impact on student learning and attitudes. Rebele et al. (1998) note that little research exists regarding integration of technology in the accounting curriculum, and suggest that accounting researchers should examine whether technology improves learning. Further, Rebele et al. (1998) recommend "accounting researchers should explore how educational technology can contribute to the continuing evolution and improvement of accounting education" (p. 207).

The purpose of this paper is to provide basic, comprehensive information to assist you in developing effective presentations. The use of visual aids, coupled with good public speaking skills, work hand-in-hand to create effective presentations. Your speaking style and stage presence are personal talents that you can refine with much practice and experience. Each aspect of effective presentations, however, could not be detailed in this discussion. Instead, much emphasis is given to visual aids which are essential to all successful presentations.

There is no secret to developing an effective presentation. Establishing your objectives, planning and organizing your material, and using appropriate visual aids are the essential ingredients. The recipe for effective presentations calls for all three ingredients, and you must use them in the order in which they are presented here. By establishing your objectives first, you can prepare material that supports each objective. The use of visual aids will move you further along toward your objectives by illustrating and emphasizing your ideas more effectively than words alone. Let's begin, then, at the beginning: As you start to design your presentation, you must ask yourself, "What do I want to accomplish by making this presentation?"

Effect of PowerPoint presentations on student learning

I always emphasize Theme, Understanding, Confidence. I have a similar opinion with Vygotsky. I'm a leader to arouse for their internal abilities. That is, I'm just a chair of my students are going to use anytime and they have to spread their arms to reach for the big tree. This means, we call the ZPD of Vygotsky. ZPD is the Zone of Proximal Development. Their current development is lower than potential development. But I'm sure they're going to reach the high point in the future and then pierce (penetrate) the beyond their present. I think ZPD is related with Reader Response Theory. This is a literary theory that focuses on the reader (or "audience") and his or her experience of

a literary work, in contrast to others and theories that focus attention primarily on the author or the content and form of the work. I respect any kind of result from my students.

The evidence that PowerPoint presentations influence learning is largely anecdotal. Bryant and Hunton (2000) state that the degree of improved learning is a function of a complex set of interactions among learner and medium attributes. Mason and Hlynka (1998) state that PowerPoint helps structure the content and processing of a lesson or lecture. Aiding note-taking (and thus facilitating study) is another purported advantage of using PowerPoint (Cook, 1998). Parks (1999) reports that students liked the lecture outline and graphs on the screen, and that the PowerPoint presentation had a positive influence on students. Harrison (1999) argues that PowerPoint enhances instruction and motivates students to learn. If this is true, the bigger question is, does PowerPoint help students learn?

PowerPoint presentations incorporate graphics, animation, and color (imagery). Human information processing theories focus on how the human memory system gathers, transforms, compacts, elaborates, encodes, retrieves, and uses information. Sensory registers, short-term memory, and long-term memory are the three major storage structures of the human brain. The sensory system registers stimuli and holds them for a brief period until they are recognized or lost.

Giving a great presentation: visual aids with impact

In several opinion polls, public speaking is cited as individuals' single greatest fear. It needn't be. With preparation and practice, anyone can give a powerful presentation. Studies show that there are three key elements that contribute to strong learning; hearing, seeing, and doing. During a presentation, you can attack both the visual and auditory senses. Your body itself, including your attire, grooming, gestures, and facial expressions make up one aspect of your visual presentation. The other aspect of your visual presentation is visual aids used to engage your audience. The goal of visual aids is to increase sensory contact with your audience. Used well, visual aids: Enhance understanding of the topic, Add variety, Support your claims, Reinforce your ideas, Give your presentation lasting impact. Visual aids come in many varieties. Select visual aids that are appropriate for your subject matter and help illustrate your ideas. Visual aids include: Sketches and pictures, Graphs and charts, Posters, Objects or models, Films or video tape. This paper, I focus on the effect of PowerPoint usage. PowerPoint is one of the easiest and most professional delivery systems for visual aids. If you do not have a computer available to you during your presentation, you can print out PowerPoint slides to use as handouts or transparencies. For any successful presentation, you must know your objectives. It is these objectives that drive your presentation and move the audience to your end goals. Your end goals may be that the attendees take a particular action, adopt a new perspective, or respond to facts and information. Establishing these goals requires careful planning. The key to designing your presentation is determining these objectives. After all, they become the foundation upon which your content, organization, and visual aids are built.

Establishing the objectives for your presentation requires an analysis of your own goals, as well as your audience's needs and expectations. By considering the nature of your audience, you can more easily determine what you will present and how you will

present it. An audience analysis will enable you to: Select appropriate points of emphasis in your presentation. Develop a useful level of detail. Choose and prepare appropriate visual aids. Create a tone that is sensitive to your audience's circumstance. Your presentation will ideally form a bridge between something you have and your audience wants. Let the audience analysis influence the form of information presented

so you can create this bridge.

When you have determined the characteristics of your objects, then you are ready to plan and organize your material. The tips listed below will assist you in tailoring your approach accordingly. Keep in mind that the use of visual aids will help to produce effective one-way or two-way communication. Many factors are involved in choosing these visual aids, and the type of interaction you want to develop with the audience will influence your choice.

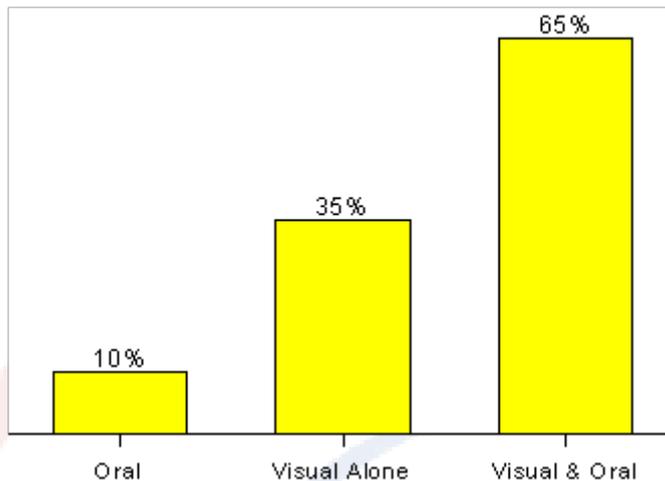
And then you need to plan your material. These are the basic suggestions. **Do not wait to prepare your presentation** while on your way to the training session. You cannot do your best at presenting or persuading by "winging it." **At a minimum, prepare an outline** of goals, major issues to be discussed, and information to be presented to support main themes. Limit content to your major point and **no more than five key** supporting points. **Analyze your audience.** Prepare your content considering such things as whether they are likely to be friendly or unfriendly, lay or technical in their background, and whether they want only to listen or to respond and contribute. **Select appropriate visual aids and a presentation style** that will be effective in the physical setting for your training session.

The effect of visual presentation

Visual aids help your presentation make things happen. Visual aids help you reach your objectives by providing emphasis to whatever is being said. Clear pictures multiply the audience's level of understanding of the material presented, and they should be used to reinforce your message, clarify points, and create excitement. Visual aids involve your audience and require a change from one activity to another: from hearing to seeing. When you use visual aids, their use tends to encourage gestures and movement on your part. This extra movement reinforces the control that you, the speaker, need over the presentation. The use of visual aids, then, are mutually beneficial to the audience and you.

Visual aids add impact and interest to a presentation. They enable you to appeal to more than one sense at the same time, thereby increasing the audience's understanding and retention level. With pictures, the concepts or ideas you present are no longer simply words - but words plus images. The chart below cites the effectiveness of visual aids on audience retention.

Retention of Information



People tend to be eye-minded, and the impacts visual aids bring to a presentation are, indeed, significant. The studies, below, reveal interesting statistics that support these findings: In many studies, experimental psychologists and educators have found that retention of information three days after a meeting or other event is six times greater when information is presented by visual and oral means than when the information is presented by the spoken word alone. Studies by educational researchers suggest that approximately 83% of human learning occurs visually, and the remaining 17% through the other senses - 11% through hearing, 3.5% through smell, 1% through taste, and 1.5% through touch. The studies suggest that three days after an event, people retain 10% of what they heard from an oral presentation, 35% from a visual presentation, and 65% from a visual and oral presentation.

The use of visual aids, then, is essential to all presentations. Without them, the impact of your presentation may leave the audience shortly after the audience leaves you. By preparing a presentation with visual aids that reinforce your main ideas, you will reach your audience far more effectively, and, perhaps, continue to "touch" them long after the presentation ends.

Visuals add an important dimension to a presentation, and you, the speaker, must capitalize on this dimension. It is critical that you prepare visual aids that reinforce your major points, stimulate your audience, and work well in the physical setting of your presentation. Visual aids and audio-visuals include a wide variety of communication products, including flip charts, overhead transparencies, slides, audio-slide shows, and video tapes. Demonstrating a process or simply passing around a sample of some equipment or model are also effective ways to clarify messages visually. If visual aids are poorly selected or inadequately done, they will distract from what you are saying. The tips listed below will help you in the selection and preparation of visual aids.

And you have to consider the tips on preparing visual aids. **Start with at least a rough outline of the goal** and major points of the presentation before selecting the visual aid(s). For example, a particular scene or slides may trigger ideas for the presentation, providing the power of images. Do not proceed too far without first determining what you want to accomplish, what your audience wants to gain, and what the physical setting requires. **Each element** of an audio-visual product - a single

slide or a page of a flip chart presentation, for example, - **must be simple** and contain only one message. Placing more than one message on a single image confuses the audience and diminishes the potential impact of visual media. **Keep visual aids.** Determine the **difference between what you will say and what the visual aid will show.** Do not read straight from your visuals. **Ask the audience to read or listen, not both;** visual aids should not provide reading material while you talk. Rather, use them to illustrate or highlight your points. **Give participants paper copies** of various graphic aids used in your presentation. They will be able to write on the paper copies and have them for future reference. **Assess your cost constraints.** An overhead transparency presentation can always be used in a formal environment if 35 mm slides are too expensive.

Account for production time in your planning and selection process. Slides must be developed, videotape edited - you do not want to back yourself against a wall because the visuals are not ready. You can often get production work done in 24-48 hours, but it is much more expensive than work that is done on an extended schedule. Use **local photographs** and **examples** when discussing general problems and issues. While a general problem concerning welding safety, for example, may elude someone, illustrating with a system in use at the site can bring the issue home. Use **charts** and **graphs** to support the presentation of numerical information. Develop **sketches** and **drawings** to convey various designs and plans. When preparing graphics, **make sure they are not too crowded in detail.** Do no over-use color. See that line detail, letters, and symbols are bold enough to be seen from the back of the room. **Do not use visual aids for persuasive statements,** qualifying remarks, emotional appeals, or any type of rhetorical statement. **If you have handouts, don't let them become a distraction** during the presentation. They should provide reinforcement following your address. Consider giving them out after the presentation, unless the audience will use them during the presentation or will need to review them in advance of the presentation. **Practice presenting the full program** using graphic materials so you are familiar with their use and order. If you use audio-visual materials, practice working with them and the equipment to get the timing down right. **Seek feedback on the clarity of your visuals** and do so early enough to allow yourself time to make needed adjustments.

The question of what to use and how to choose is an excellent one. The next several pages will help you answer this question by identifying the advantages and limitations of each type of visual, as well as the development techniques required in preparing each. By looking at these pros and cons, you can more easily decide what will work best for your presentation. This is a very formal procedure, but these are the support and standard for them, and then my students should find their own method with this kind of outline. I'll give 4 suggestions for your and everyone's presentation. First, I'm designing the presentation. There is no secret to developing an effective presentation. Establishing your objectives, planning and organizing your material, and using appropriate visual aids are the essential ingredients. By establishing your objectives first, you can prepare material that supports each objective. The use of visual aids will move you further along toward your objectives by illustrating and emphasizing your ideas more effectively than words alone. Let's begin, then, at the beginning: As you start to design your presentation, you must ask yourself, "What do I want to accomplish by making this presentation?" So you're trying to follow this steps and you find your own.

Most of people are very familiar with book. So I focus the effect of visual presentation with book; especially, every people know the story from fairy tale to the popular and contemporary children's literature. After student's presentation with my comments, their presentation style is going to change before then. So They must meet before their presentation, and then they have to design their own presentation, I'm going to give just few advices and check the progress. I want that they're going to find their own thinking. Before their starting presentation, I sit down behind the classroom and emphasizing this time's hero is you, also you're a today's professor. And during presentation, I'm eye-contacting whether they see me or not, I'm only focusing on him/her. I'm emphasizing on their opportunity from the book. After presentation, I'm giving several comments related with their presentation and asking a few questions. I think this kind of work is giving courage to them. All procedure finished, honestly give a real advice person by person, and give a hug/handshaking with my honour.

CONCLUSIONS AND LIMITATIONS

I emphasize two key points; opportunity, difference. 1st point is opportunity. "Opportunity" is an occasion offering a possibility or a chance for all of my students. In their internal, They want to bring their own something to light in themselves, their family, society, and so on. 2nd point is difference. I admit people's different characteristics. Their inner and external changing refine from people's relationship with recognition. During this presentation, they play a role with their recurring theme. You must not evaluate the appropriateness of the visual aids. You must evaluate how best to prepare them. You must evaluate their effectiveness in your practice run. Adding the visual dimension to a presentation is key to ensuring the presentation's overall success and plays an important role in choosing and effectively using visual aids.

And I'm emphasizing the rehearsal or practice. Rehearsal is a fundamental step in developing and refining effective presentations. Practicing your presentation and working closely with the meeting organizer to secure the necessary technical supports will assist you in making a smooth performance. This paper isn't the purpose the discussing the effect from statistics. I want the see some Opportunities and beliefs and Courage are all important elements for everyone. But of course I'm going to evaluate with statistics in the near future for the exact evaluation for them.

In summary, the results suggest that educational technology such as PowerPoint improves students' attitudes toward the instructor and course presentation. Conclusions and findings are subject to limitation. A significant limitation is the internal validity of the study. Even though PowerPoint slides could affect learning and satisfaction. This study used the PowerPoint slides that came with the textbook. Future research can examine whether different types of PowerPoint slides (poorly-designed vs. well-designed) affect students' learning and attitudes. More research would be required to establish stronger claims as to the effect of PowerPoint on memory and presenter/presentation effects.

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Monitoring Progression and Personalized Coaching in a Virtual Gaming World for Learning Sciences.

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Abstract

It is important to better integrate the use of web learning applications in classrooms and also to ensure that some individualized coaching is available for students depending on the context, their progression and their preferences. Some control of the system must be offered to the teacher, so he can follow the progression of his group of students, and define activities within it, complementary to what is done in class.

We developed an application to support the monitoring of learners activities in a web Virtual Gaming World for learning science. The system is connected to an existing web environment where the learner can explore different worlds to learn content like mathematics, ecology, physics, genomic, etc. The system uses the database collected on the users activities and offers the possibility to describe and link to those activities structures of concepts, which may be learned in these worlds. Different conceptual structures may be linked to the activities in the environment, depending on a specific educational program.

An interface makes it possible for the parent or the teacher to visualize the progression in the environment of a student and/or of a group, seeing the overlay student's model on the structure of activities and structures of concepts. Teacher may search for an activity related to concepts, and define it as a task for his group of students according to a calendar schedule. A rule based personalized coaching system is integrated, where rules may be described to define the coaching strategies so that, depending on different parameters of the context of activity, of the learning style preferences of the student, and of previous help, different animated avatars may be displayed with coaching messages which are written to support the motivation of students.

Introduction

We will present a research, which was done in collaboration with a non-profit organization who developed a virtual gaming world to learn Science on the web. We were asked to develop for them a monitoring environment so teachers and parents could supervise the activities of students in the Game For Science environment.

We insisted in adding to the monitoring functions, some individual coaching of the motivation of students, so they could also benefit from a better knowledge of their progression. This research draws from research Intelligent tutoring system, especially those linked to motivation for learning. It also tries to integrate theories on coaching in relation to learner's style preferences.

Some personalized coaching is also offered to learners, when they work alone, similar to what the teacher would do depending on the context and the individual. A rule based personalized coaching system was added so messages to support motivation could be defined and presented by animated avatars to learners, depending on different parameters of the context of activity and of the learning style preferences of the student.

Need for a better integration of the use of Web applications in classrooms

With the proliferation of applications for learning and educational content on the web, teachers are looking for ways to integrate them in their regular teaching. More and more schools are being equipped with computers so it becomes possible. Also more and more students have access to computers outside of the school to complete their learning at home. But studies have shown that teachers need some tools to really integrate that with their regular teaching. They have to define which applications and assignment may be helpful as complement, and also to follow their students, using them in order to help them or complete what is available in those systems.

Technologies are more and more being used to support learning activities in classrooms. In a report in Quebec, though more and more equipment, Ethernet connections and software applications are made available for learners in schools, their integration in classroom activities is still in development. Teachers, don't always have enough training and support to use them to their full potential (Bibeau, 2005, 2008; Larose, Grenon, Lenoir, & Desbiens, 2007). They prove to be useful to develop writing and reading activities (Grégoire & Karsenti, 2013). Learning activities are made available on other learning content, but still teachers feel that it is sometimes difficult to follow the activities of individual learners in those activities and to coordinate their use in classroom with the group. Paradoxically if the interaction with a computer open the opportunity for more individualized learning, and the occasion to maximize the student autonomy and his active learning activities; it appears that it is often disconnected with the teaching in class and the coaching he may receive from his teacher.

Authors like (Dillenbourg & Jermann, 2010) have shown that it his important to develop means to orchestrate the use of technologies in the context of class activities so the group as a whole can progress, with everyone finding its share at the cognitive, motivational and social levels; since all those dimensions play their part to ensure learning. It is important to support that integration with flexible tools where teachers

can control more the activities using the technological learning environments and resources.

For technology enhanced learning in class it is important to better integrate the use of web learning applications. Some control of the system must be offered to the teacher, so he can follow the progression of his group of students, and define activities within it, as a task to be done by the students with deadlines and it is important for them to be able to follow whether the students have succeeded doing those tasks. The teacher must complete what may be done in the environment with other assignments related to the content to be learned.

Coaching motivation in relation to learner's style preferences.

Motivation is an important factor for learning. It drives attention and effort of student. Many factors may influence students in their desire to learn. If cognitive styles have been studied to describe individual differences in learning (Gardner, 2000). It is mostly related to the modalities of presentation (auditive, visual, etc.) and is not really independent of the content to be learned.

In the context of the integration of TIC for education and coaching, what appears important is more what characterize the learner preferences and motivation for learning (Martinez, 1999, 2001, 2005; Martinez & Bunderson, 2000). Martinez describes how different factors may influence the learner motivation. Some do it because they like to learn, or because they are competitive. Some likes to plan their learning and be told in details what to do. Others like to be independent and don't like to do what they are told. The degree of effort the learner is willing to put may also be different. All those factors may be intermixed but she developed a Learning Orientation Questionnaire, which is used to sort learners into four types: Transforming or Intentional, Conformist, Performing and Resistant learners. She suggests that depending on the Learning Style of a learner different coaching strategies should be used.

The Game for Science Environment¹

This research was developed as a complement to a web Virtual Gaming World developed by CREO Inc. for learning science. It is very popular environment being used freely on the web and in schools in Canada, US and France.

The Game for Science application is a Virtual world on the web, where students can explore different islands and have their knowledge being challenged on different scientific contents, like chemistry, physics, mathematics, biology, etc. The user chooses a pseudo name and a representation for himself and explore those worlds where he meets other learners and also avatars of the world. They may chat with other players and provoke them in duels on the knowledge they have acquired.

The learner is asked to solve different problems in context like for example in a hardware store: "How many boxes of tiles of 10cm X 10cm) to cover a floor of a 4 X 8 meters?" or "Choose the different ingredients and chemistry materials, to produce toothpaste". If the student succeeds in answering the questions, or doing the right operations, he may earn Neurons (Scores for acquired knowledge) and Talents

¹ Game For Science : CREO Inc. <http://www.gameforscience.com>

(Money to exchange for goods in the virtual world). The student progresses in the virtual game, he may do so freely as he wish or in some cases, he have to follow a sequence where some easier questions are asked first, then harder ones, thus scaffolding the presentation and interrogation on the content.

The system is being used in schools it is available in French and English (CREO). The content in the application is prolific but it was difficult for the teachers to know what could be done inside the system and to assign specific tasks to their students.

We were asked by CREO to design a monitoring environment that would display the activities of students in the Game for Science different worlds. The system was to be used by teachers to better integrate those activities with the teaching in class. Since many children have access to a computer at home, the system was also to be offered to parents, to give them a better idea of the progression of their child in his learning activities and also so they could encourage their children to pursue learning activities at home.

Monitoring the progression in the Game for Science Environment.

The application we developed was designed to monitor the progression of the students and groups in the Game for science environment. The system uses the data collected on the user progression in the various activities and can display it to the authorized parent or professor, for a user and a group.

The system was incremented with the capacity to represent the structures of concepts. It makes it possible for a pedagogue to define the hierarchy of concepts, which are part of the educational program in mathematics, or technology, or life science, etc. Structures of concepts are independent and may overlap, for example, scientific methods and physics may both be part of an exercise. Once conceptual structures are defined, each activity in the environment (activity, steps in that activity) is then linked to the concepts which are covered within it. So the progression of the student acquiring the different concepts can be displayed depending on the problems he have solved in the activities in the Game For Science worlds.

For monitoring the activities an interface was designed so the parent and the teacher can visualize the progression in the environment of a group of students, his class or a specific group within the class. With the system the teacher to monitor what his group of students is doing with the system. He can seek what the students have done, what was done since last week in the activities, but also in a conceptual domains like Mathematics. Some control of the system is offered to the teacher, so he can not only monitor the progression of his group of students, but he can also define tasks in the calendar, which are activities to be done in parallel to what is done in class. The teacher may search what activities in the environment may be linked to specific concepts he wants his students to practice. He can than define it as a task for his group of students according to the calendar schedule.

The teacher can choose a specific student to see how he is doing compared with the group. He can see for that student and the group the percentage of completion in the structure of activities in Game for Science, or in the structure of concepts related to those activities, for example in the island Mathematics, where students have to solve problems related to measures while answering questions of clients in an hardware

store. Figure 1 presents an example of the monitoring system showing the structure of concepts with the progression of a student compared to his group of reference.

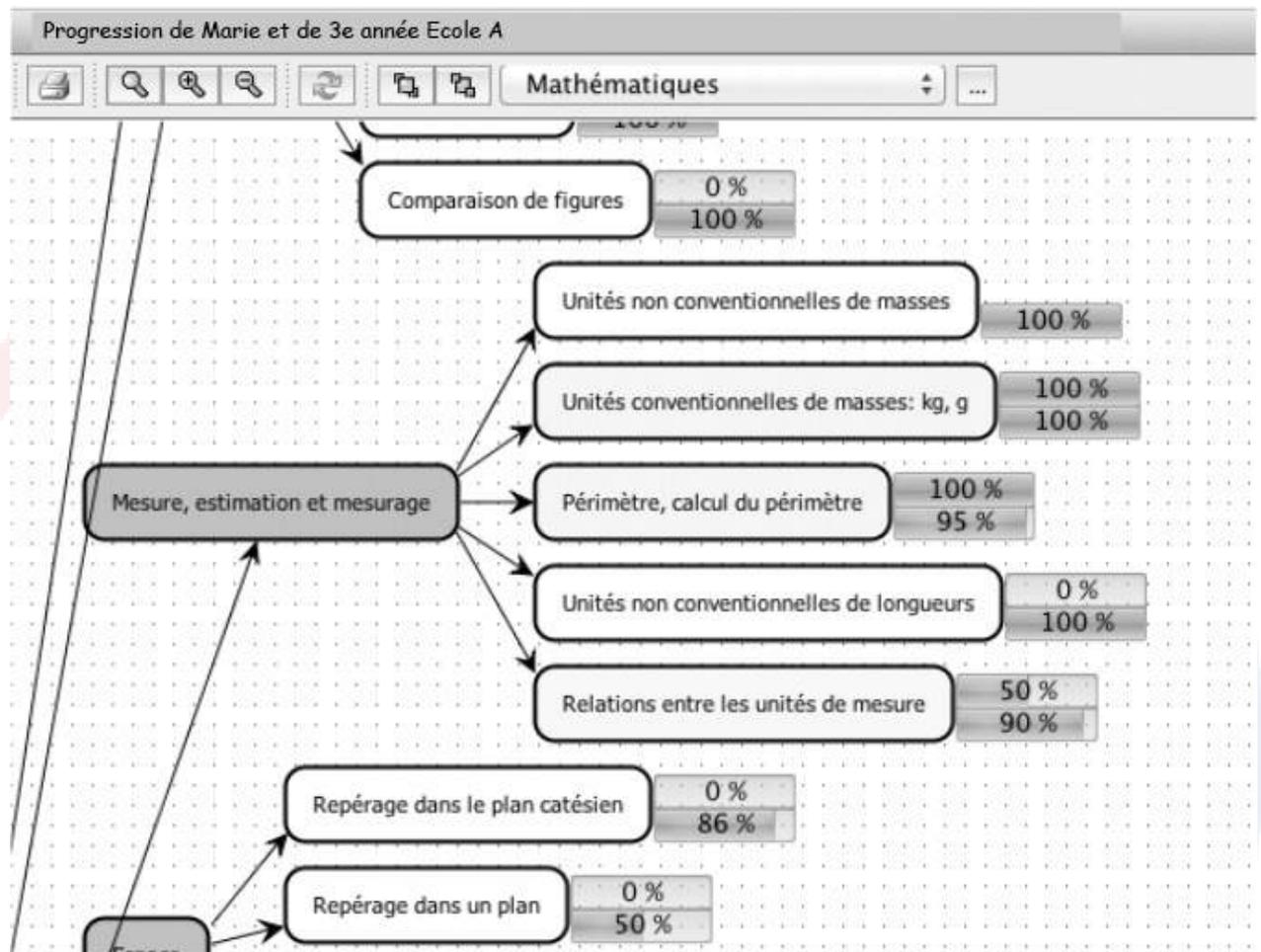


Fig 1 Extract of the structure of concepts in Mathematics and the progression of a student Marie compared to his group of reference Class 3a in School A.

Integration of personalized coaching

We saw the opportunity to use the development of this monitoring environment, which gave us dynamic overlay models of the learners, to integrate in Game For Science some additional coaching for students based on theories of motivation and of learning styles preferences. Figure 2 presents how coaching was integrated in the Game for Science system, using the context and the statistics accumulated in the monitoring system.

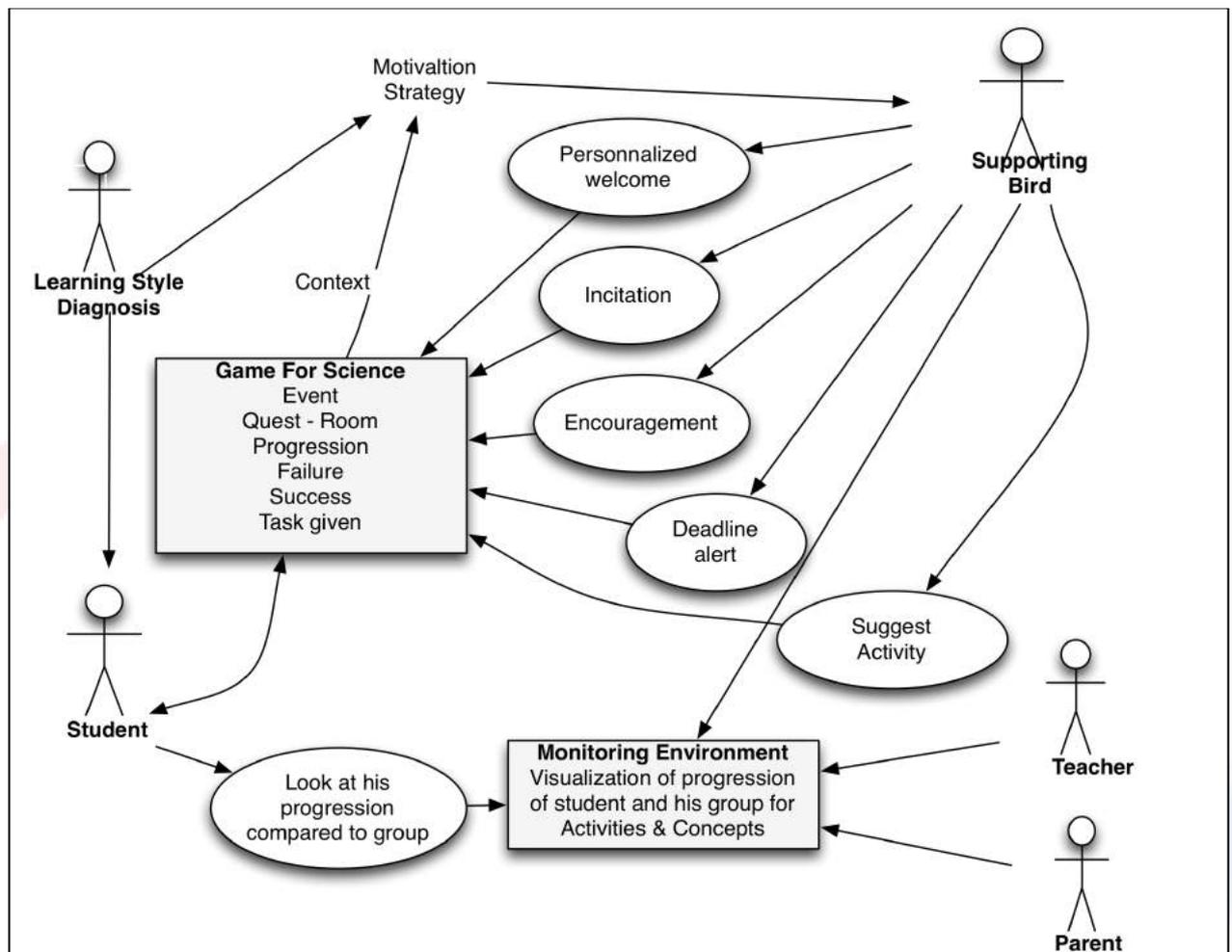


Fig. 2 Structure of interaction of the monitoring and personalized support system.

For the coaching system we developed a Rule Based system where events in the events and conditions in the environment can be linked to coaching messages, which will be displayed along with a specific coach avatar. Among the conditions considered in the rules some are related to events - the user is entering a specific world; he just failed or succeeded a problem. Conditions may be related to history - How many days since he log in the last time? How many times a suggestion was given? Other conditions were integrated which were related for example to the fact that a task had been assigned to the student classroom by the teacher with an approaching deadline.

Finally in order to take into account the personality of the learner we adapted the Learning Style Questionnaire from (Martinez, 1999, 2005) Each student completed the questionnaire so that his learning preferences could be assessed as one of the four learning styles, described by Martinez. So in the rule based Coaching system, the learning style was a condition that could be used to define what coaching avatar was assigned and what motivation messages to be used, following Martinez suggestions in order to improve their impact on the student motivation. For example if the student was “performing” he would get suggestions to compete with others. If he was “resistant”, he would be challenged (See figure 3). If he was more “intentional”, he would be told about the knowledge itself and how it can be used in different situations

(invitation to transfer acquired knowledge). If he was conformist, he was advised in more details, as to what he should do to succeed.



Fig 3. Avatar represented as an exotic bird uses challenge to motivate a student identified as having a “resistant” learning style.

Assessment of the system

The system will be evaluated in the context of a real class. We will create a group for the class students and give them access to the prototype of Game For Science with monitoring and coaching. The prototype is a mirror of the real environment, but where activities are being monitored. The teacher will have access to the environment, where he can monitor what is group is doing. He can choose the group in general or one student in comparison to the group. Since we want to preserve confidentiality of the student activity, only the teacher will know what pseudo name each student has in the environment if the student parents have agreed for his participation in the project. For the students they will, as before, only see pseudo names in the environment, so they cannot identify their peers unless they both agree in reality or in the exchange inside the chat.

They will have activities inside the environment for a period of one or two months. The teacher will be invited to assigned specific tasks to their students using the system, and to monitor their progression.

After this, there will be assessment by the students of the Game for Science and the coaching and also assessment of the monitoring environment by the teacher. After this parents will be given access to the monitoring environment and there will be assessment using interviews with them. This is a preliminary evaluation of the prototype and we did not want the assessment of the environment by the students, nor

the activity in the class, to be influenced by the parents interventions because of their use of the monitoring system.

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1. Introduction: instructional designers and content analysis

When designing any kind of training program, you necessarily need to represent the new knowledge system that the learner will have to acquire at the end of the learning process.

Indeed, the content analysis is a crucial step during which instructional designers define and propose an interpretation of the mental model (according to P. Johnson-Laird's view) corresponding to the topic of the course. In other terms, they outline the logic and substantial architecture of the information to be acquired by the learners.

Everything starts with the analysis of the contents of the course. These contents are produced by experts and/or scholars; they are usually related to a general learning objective, but they are often shared without a pre-established logical order and in different formats (slides from face-to-face lessons, textbooks, clips, audio files, images and sometimes also hand-written notes). It is a transition process from chaos and confusion to an organized structure of information.

During this process, instructional designers read and analyze all these contents, select the distinctive concepts, start marking them according to their importance (main, dependent or correlated) and then connect them by explicit relationships. What do they do? With the goals of the course clear in their mind, they start to organize them according to a structure that will be the starting point for the design of the training program. Therefore, this activity is not limited to pure analysis and synthesis of content, but it is already characterized by a first reasoning on the instructional objectives and on the possible related teaching strategies to use. When instructional designers decide to structure the contents according to a specific hierarchy, to organize them in sub-groups, or even to break them into small pieces, they are already reasoning on the best way to support the learner's learning process.

What is the most suitable sequence to present information in order to effectively achieve the main objectives of the course? What are the contents that need to be broken into small pieces in order to support knowledge acquisition? What are the contents that should be considered "subordinate" (or only for additional reference) because they could generate a cognitive overload and then compromise the learning process? These are only some of questions instructional designers ask themselves during the analysis.

It is clear, then, that this initial step is not a simple textual analysis, but that many other aspects characterize it, when dealing with instructional design activity. We need a method of analysis that allows us to effectively and quickly analyze large amounts of content, but we also need a clear and concise way to represent the output of this analysis that can simply convey all the initial reasoning to the rest of the team (for example, content expert, other instructional designers or customer).

Is there a tool with all these features?

2.1. Tools for knowledge representation

Today instructional design teams, and, in general, teachers and trainers, mostly use two kinds of tools for knowledge representation: concept maps and mind maps.

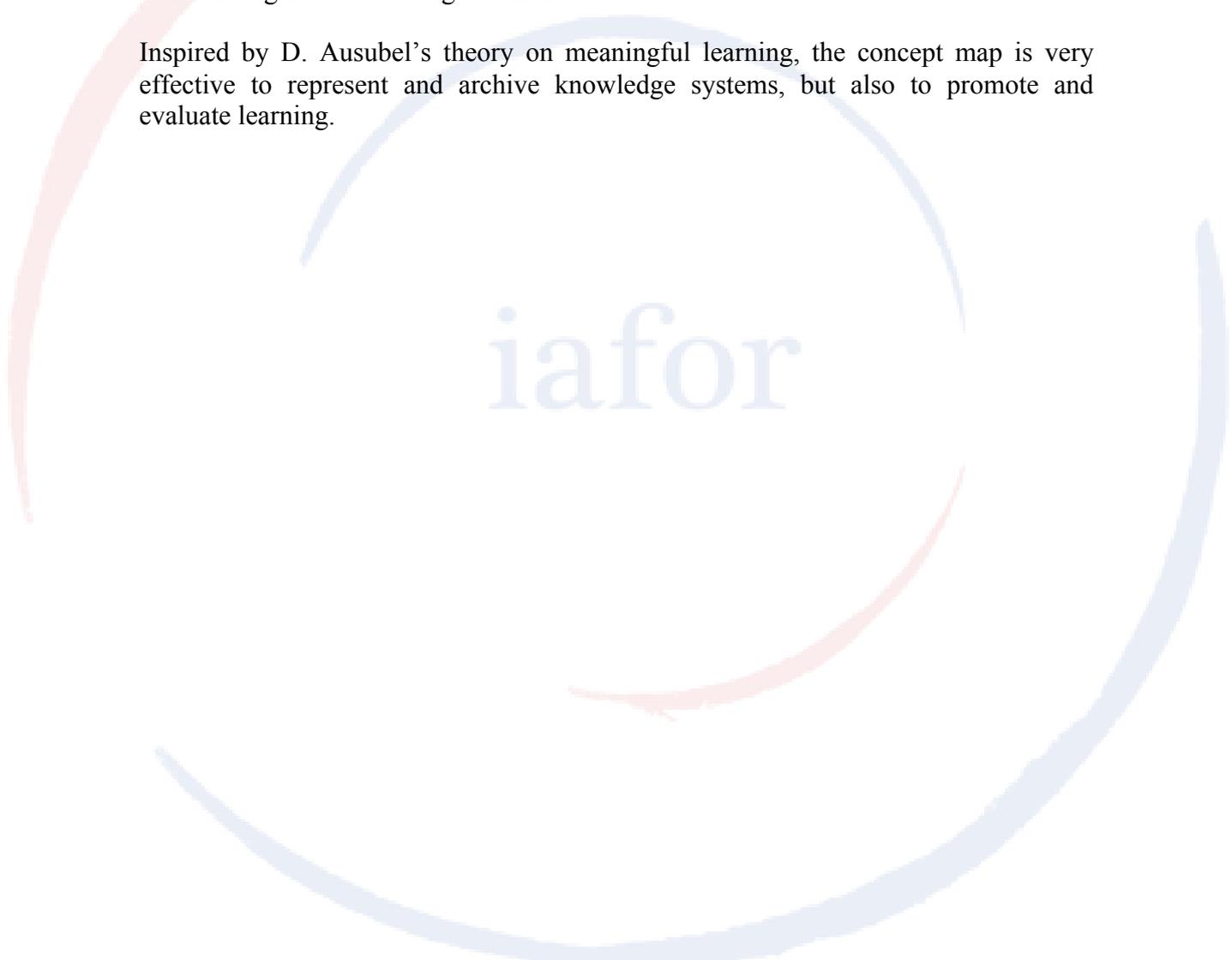
Let us briefly analyze their main features.

2.1.1. Novak's concept maps

The concept map was developed in 1972, during a J. Novak's research project. It is a logical-visual and static representation of a knowledge system related to a specific content area. This structure is composed of concepts (represented by blocks of text enclosed in boxes or circles), that are linked by connecting lines (arrows), according to different kinds of logical relations made evident through linking words (verbs, conjunctions, etc.). The concepts are organized according to a hierarchical order, so that the most general and inclusive concepts are at the top of the map and the most specific and detailed ones below.

Cross-links usually complete the map, by connecting "far" concepts that are in different segments or belong to different domains.

Inspired by D. Ausubel's theory on meaningful learning, the concept map is very effective to represent and archive knowledge systems, but also to promote and evaluate learning.



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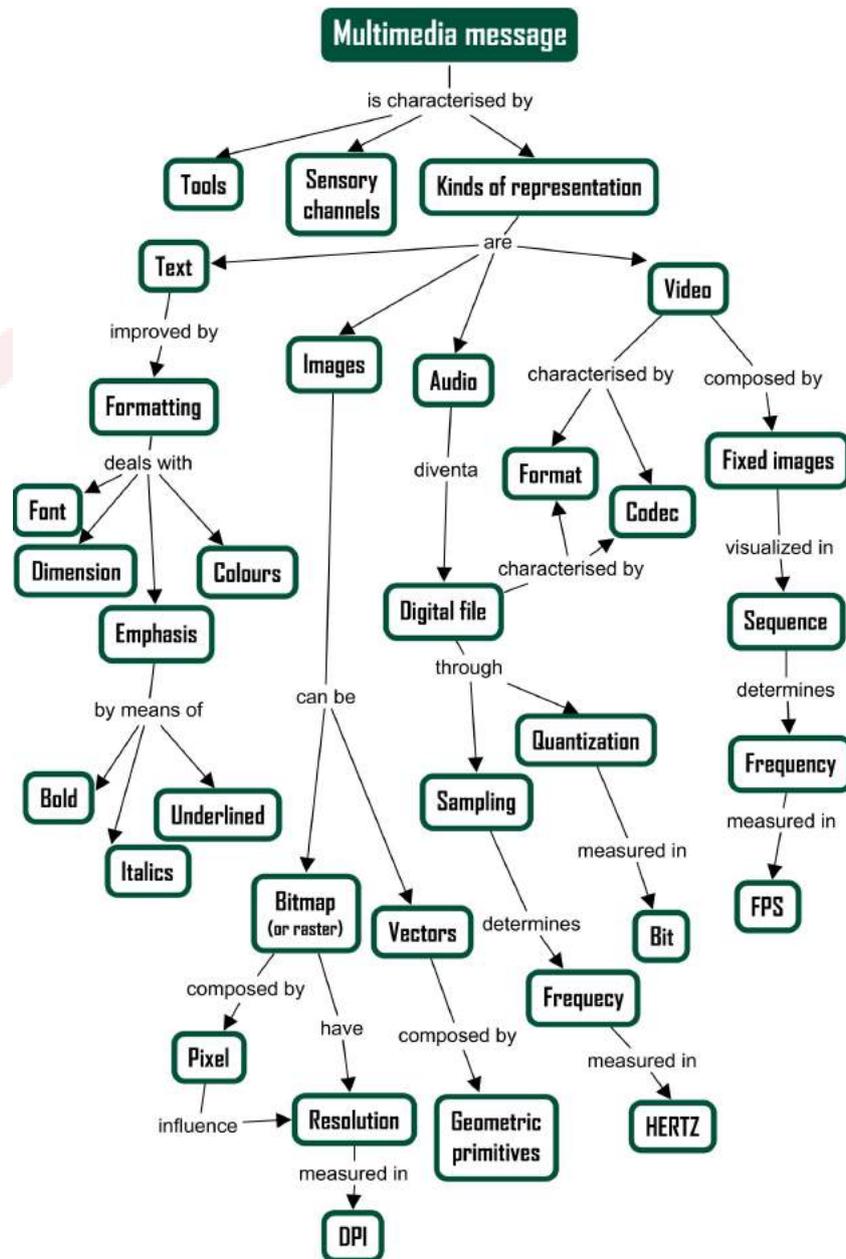


Fig. An example of a concept map

2.1.2. Buzan’s mind maps

Mind maps are another interesting tool. Developed by T. Buzan at the end of the Seventies, mind maps are graphic representations of the associations that our brain makes between the concepts. They have a radial structure that starts from a central concept (preferably represented by an image) and spreads with main branches (curved lines) divided into sub-branches. On each branch, there is a concept, represented by an image or a key word. The map is even more appealing thanks to the use of colors.

This type of map “mimics” the radiant thinking and tries to reproduce the way the brain thinks and generates ideas. By virtue of this feature, it is an effective tool to support and facilitate creative thinking, learning and memory, problem solving, decision-making and many other forms of reasoning.

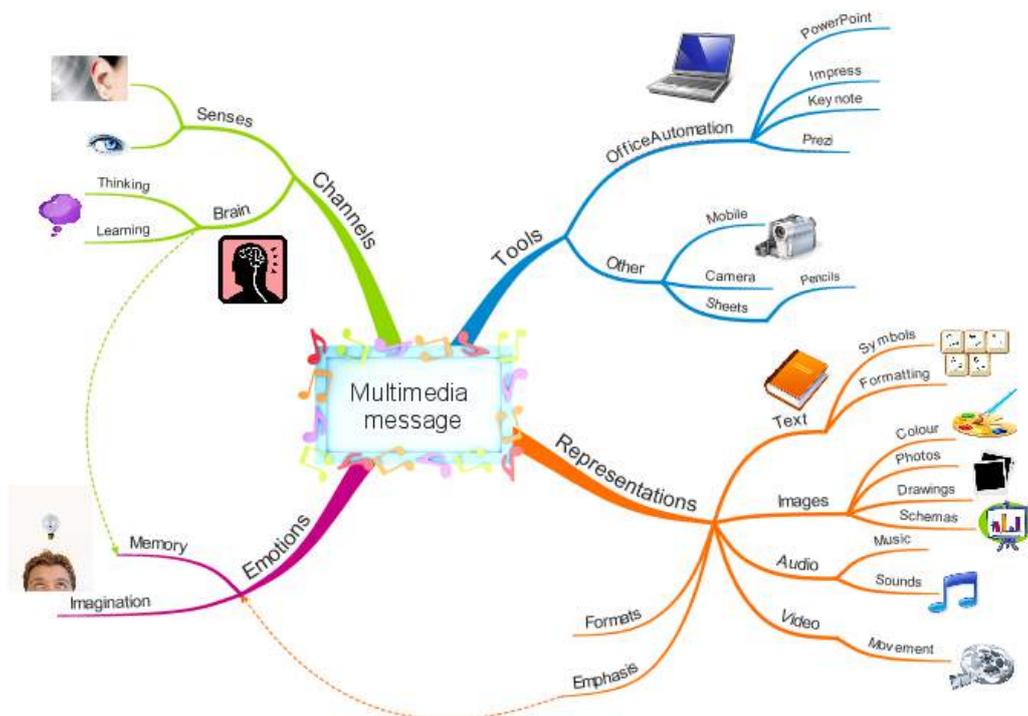


Fig. An example of a mind map

Since they were developed, these two types of map have been used with excellent results in many different fields, and they have considerably influenced the creations of other types of maps (like, for example, flow-charts or causal maps) or of hybrid forms (like solution maps).

Can they effectively answer instructional designers' needs, too? Unfortunately, only in part, and let us see why.

2.2. Shortcomings of the maps for instructional designers

Despite their visual impact, their ease of use and reading, these maps have some shortcomings if we think about the specific needs of Instructional Design. Let us examine the most relevant ones.

First: they are too much dependent on the subjectivity of their creator. This feature is extremely evident if we think about mind maps, where the representation follows the flow of mental associations evoked by each single concept. It is present also in concept maps, even if in a lighter form. Indeed, the experiences and prior knowledge of the person who designs them, his/her training path, way of representing reality and language influence the selection of concepts (in particular the secondary ones) and the choice of linking words.

Second: they are poorly oriented toward knowledge system formalization and ontologies construction. Indeed, they are hardly compatible with an effective standardization because they are too much dependent on the subjectivity of their creator. For example, the use of synonyms or the insertion of information and elements that are too much detailed or sometimes even unnecessary can compromise the whole architecture and make it seemingly more complex or difficult to access.

Third: they describe the relationships among the concepts; however, they are ineffective in representing their hierarchical structure. Indeed, these two types of maps give partial information on it. On the one hand, the concept map tries to make the hierarchy among concepts explicit by disposing them from the top down, according to Novak's guidelines. On the other hand, the mind map gives this information by representing the concepts on the same branches, with different sizes. In this manner, apart from their graphic appearance, this kind of information is difficult to formalize and get across, without requiring any further comments or explanations.

Fourth: they do not include instructional objectives that are usually listed in a different file. This division is insidious, because it can provoke a split between the two design activities of content analysis and reasoning on the possible structure of the related training program: a real dualism between knowledge and observable behaviors! The consequent risk consists in not thinking on the best teaching structure to promote the acquisition of those contents in an effective and creative way, but in following always the same process characterized by a too linear and didactic presentation of the information, and in the end reaching a foregone conclusion.

In the light of these shortcomings, for years we have been using maps that, even if defined as concept maps, already represented a synthesis between the two types of maps we have just described. Indeed, they were characterized by nodes, arrows and linking words (like concept maps), by radial shape and colors (like mind maps), and often enriched by numbers to show processes or the logical sequence of contents. Nonetheless, they still did not perfectly meet our needs.

That is why we decided to create a new tool that should be inspired by the good features of the existing maps, but also be able to fully meet all the requirements characterizing the delicate and peculiar activity of Instructional Design.

3. The OrBITal maps

The OrBITal maps are innovative maps, developed by a group of instructional designers with decades of experiences.

These maps are an effective solution to the problems we have described so far, because they allow to have a single output that gathers all the information instructional designers need to have in the initial phase of macro-design. Thanks to this tool, they can: 1) analyze, map and represent a knowledge system with graphics; 2) define the relationships among the different concepts and the hierarchical structure that ties them together; 3) identify the related instructional objectives, their complexity levels and, in an initial state, their semantic density, too. How is this possible?

“This concept orbits around that other one.” This way of saying that we often use and hear in educational settings when talking about the relationship between different topics provided the inspiration.

It “orbits.” Like satellites orbit around planets, planets around stars, star systems around other star systems.

Therefore, we drew inspiration from nature and decided to represent the knowledge system as a gravitational system. An open space where concepts are planets of different sizes, bound together by forces that push them on different orbits. A complex, distributed and netlike system, governed by rules, cause-and-effect and dependency relationships that “force” (or, rather, help?) us to follow well-defined routes in order to give everything a logical meaning.

3.1. The structure of the OrBITal maps

As in a real solar system, in the OrBITal maps there is a central *nucleus* (the Sun) that represents the main concept of the knowledge system to be represented. Around this *nucleus*, there are the planets (the other concepts) that orbit at different distances, according to the nature of the relationship that ties them to the *nucleus*. This relationship is expressed not only by the distance of the concept from the *nucleus*, but also by a logical operator on the connecting arrow.

On an orbit, there can be a single planet, but even many more. This second case occurs when there are concepts that are connected to the main *nucleus* by the same kind of relationship, and, then, can be considered like “brothers”.

Sometimes orbits can cross one another, in correspondence to a planet. This happens if there is a “cross-link” between distant content areas and then, if that planet is simultaneously related to two different *nuclei*.

Moreover, orbits do not develop only concentrically around the central *nucleus*. Indeed, the general architecture can be enriched further because each planet in the system can be the *nucleus* of another solar system (a “secondary” one) and then be surrounded by further orbits and satellites.



Fig. The structure of an OrBITal map

In such a structure, orbits play a fundamental role because they outline a real “semantic space” where there are two other crucial pieces of information: instructional objectives and complexity levels.

The objectives are the behaviors the learner will have to carry out in order to be considered competent on that portion of the map, represented from a *nucleus*, a variable number of planets and its related logical operators.

The complexity levels are defined according to Bloom’s taxonomy and convey the complexity degree of the relationships among the concepts. They translate the information conveyed by the logical operators into “instructional” terms. Indeed, they communicate the cognitive complexity that is required to carry out that specific behavior and, as a consequence, they influence the choice of the teaching strategies.

Therefore, the OrBITal map is structured in a way that allows, on the one hand, to “take a picture” of very large and complex knowledge systems, with particularly detailed descriptive levels given by a variable number of systems and sub-systems. On the other hand, it allows to draw a learning path from the central *nucleus* toward the outer areas, with instructional objectives that show increasing difficulty.

3.2. Beyond the shortcomings of the traditional maps

How can these new maps overcome the shortcomings related to the use of the traditional maps that we have described before?

First: traditional maps are too much dependent on the subjectivity of their creator. With the OrBITal maps, we can solve the problem of the personal interpretation. Indeed, by using the logical operators, we can formalize and standardize some key steps in the process of map construction.

In concept maps, instructional designers can describe the relationships between two or more concepts by means of verbs or conjunctions that they freely choose and place on the various vectors. On the contrary, in OrBITal maps their choice is limited to one of the six logical operators available (i.e. *is*, *and*, *or*, *implies*, *includes*, *is connected to*). In this way, instructional designers do not start “from scratch”: the logical operators provide useful tracks that guide them not only in the activity of description and explanation of the relationships, but also in the definition of the hierarchical structure and in the positioning of the different concept nodes within the system itself, thanks to the presence of the orbits. Consequently, the risk of generating many different interpretations from the same content structure is considerably reduced.

Second: traditional maps are poorly oriented toward knowledge system formalization and ontologies construction. The use of logical operators and orbits standardize the description of the relationships and guide the process of construction, positioning and organization of the concept nodes. In this way, we get maps that can be easily translated into ontologies, namely formal representations that, instead of using graphic elements, define a hierarchical structure of data by encoding it by means of semantic languages according to the laws of formal logic. Ontologies make knowledge systems understandable to computers, thanks to a language (OWL) that, in addition to content (data), conveys also information that describes the collection of data (metadata) and make their correct interpretation possible.

This last feature is certainly the most promising one. The OrBITal maps could be easily translated into ontologies, not only in order to “encode” the training programs, with all the information on their structure and related educational materials, but also to promote the “dialogue” between maps from different and apparently distant contexts. In this way, we could automatically create more complete and complex structures that go beyond the boundaries of the single “course” and that could be the track for professional growth or life-long learning paths.

Third: traditional maps describe the relationships among the concepts; however, they are ineffective in representing their hierarchical structure. On the other hand, the structure of the OrBITal maps allows displaying a lot of information that might otherwise remain in the mind of the instructional designer who created the map.

The position where a concept is unequivocally expresses the hierarchical relationship that ties that same concept to another one. For example, if the concept B is subordinate to concept A, then A will be the central *nucleus* around which B orbits. If the concepts A and the concept B have an equal relationship, then they will be planets on the same orbit. If the concepts B is related at the same time to concept A and to concept C by a cross-link, then it will be positioned on two orbits that reciprocally revolve around A and C.

That is not all. Even the size of the nodes gives an important information, because it conveys an immediate idea of the “distance” between the different concepts and the

main *nucleus*. Therefore, as you move away from the central *nucleus*, the smaller planets will be the more “distant” ones conceptually.

Taking advantage of the reference to the orbital system, this visual “code” succeeds in conveying a large number of basic information, while keeping a great simplicity and representative clarity at the same time.

Fourth: traditional maps do not include instructional objectives that are usually listed in a different file. With the OrBITal maps, you have a single output of the macro-design phase that, in addition to the graphic representation of the knowledge system, includes also instructional objectives, complexity levels and semantic density.

As we have seen, the instructional objectives and the related complexity levels are positioned within the orbits. The semantic density is the quantity of information related to the instructional objective, and it is given by the number of concepts/planets positioned on the corresponding orbit.

With this single output, instructional designer have all the information to go ahead with the design activities at their fingertips.

4. A case description

Our team of instructional designers has already used the OrBITal maps in many training courses. Among them, the most interesting case concerns the one for the Universities of Verona and Salento (Italy).

Our goal was to design the course of Information and multimedia technologies for approximately 800 students from Training Sciences, Education Sciences and Childhood Pedagogy faculties (1st, 2nd and 3rd year). The project included the design of the teaching activities (lessons, labs and seminars), the teaching materials (documents, slides), the textbook and the final evaluation system.

The project showed some critical aspects in the beginning: the great number of students, only two months at disposal, and a team composed of instructional designers from different cities.

In such a situation, we really needed to generate and share a clear, simple and complete output that allowed each instructional designer to go ahead with the micro-design activities (design of face-to-face lessons, teaching materials, textbook and items of the final test) simultaneously with the rest of the team. The OrBITal maps were an extremely useful and effective tool to manage the project, ensure the achievement of all goals on time, maintain a very high standard and rationalize the work process.

4.1. The work process

How did we work? The process consisted of five main steps.

The first four ones did not follow a linear flow, but they actually carried out through an iterative cycle. Indeed, we repeated these steps as far as we reached a certain “balance” in the map. Only in that moment, we proceeded with the last step.

Let us describe the phases of creation of the OrBITal map step by step.

STEP 1. Concept selection

We started from the central *nucleus* of our knowledge system (GET, i.e. Foundations of Education Technology) and tried to collect all its related concepts. As in the case of a concept map, we started with a focus question (in our example, “Which are the concepts a learner has to acquire in order to have an adequate knowledge on the topic of Education Technology?”) and we looked for answers in a first group of concepts collected on our worksheet. This focus question arose from the general instructional objective of the course: “at the end of the course, students will be able to list and precisely describe the various information and multimedia technologies used to support teaching, by adopting a scientific terminology and making a constant reference to examples, case studies and best practices in the fields of education, public administration and companies.”

In this first step, we did not care about hierarchical relationships or uniformity in the levels of analysis among the selected concepts, but we simply followed the ideas and associations that came out from our minds, without a specific order or constraint, like in a classic brainstorming.

You can see the output in Fig. 4: a main concept/*nucleus* surrounded by many concepts/nodes, with the same size, positioned around it without a specific logic or order.



Fig. The output of the first step of concept selection

STEP 2. First concept organization in content macro-areas

The rough outline we got from the first step was our starting point to reason about the position of each node within the “system”. We moved and organized the concepts so that the ones related to a specific content area were all close to each other. While trying to put everything in order and arrange a first draft of hierarchical structure, we put the concepts with a strong and direct relationship near to each other; on the other hand, we moved away the concepts with a weaker relationship.

In this way, we succeeded in identifying and making the content macro-areas evident, through the simple principle of contiguity: the closer the nodes, the stronger and more direct their relationship.



Fig. Concepts organized in content macro-areas at the end of the second step

STEP 3. Integration of orbits and logical operators

After the creation of the overall structure of the solar system, we focused on the description of the nature of the relationships among the various concepts. Indeed, the spatial arrangement of the contents, even if already quite clear in defining a first hierarchical and relational architecture, needed a more evident “meaning”. For this reason, we decided to put some connectives in our structure, like the linking words in concept maps. They allowed us to make the logical connections between the concepts clear, and to avoid the risk of misunderstandings, especially when sharing information with the rest of the team.

Therefore, in each content macro-area, we inserted orbits at different distances from the related *nucleus*, and put the concepts on them. During this activity of “sorting” and positioning of the various concepts, we added a logical operator on each orbit in order to make the relationship between the concepts much more clear. We chose the logical operators from a fixed list, adequate, in our opinion, to express the main logical relationships between concepts.

Logic relationshipY	Standard termY	Explanation of behaviour and objectiveY
ISY	isY	He/she is able to define a conceptY
IN BY	includesY	He/she is able to define the relationship between two distinct elementY
ORY	orY	He/she is able to define the relationship between two distinct elementY
ANDY	is connected toY	He/she is able to define the relationship between two distinct elementY
IF THEN àY	impliesY	He/she is able to define the conditional connection between two elementsY

Tab. 1. The logical operators used for OrBITal maps

The choice of the logical operator inevitably influenced the sequence with which the related orbits were positioned around their corresponding *nucleus*. Therefore, if the orbits describe a “strong” relationship (e.g. “is” or “includes”), then they are much closer to the *nucleus* than the orbits with logical operators of “weak” relationships (e.g. “is connected to” or “implies”).

In this way, we succeeded in further detailing the hierarchical structure of contents, by distinguishing or merging the different concepts according to the type of relationship they had with the corresponding *nucleus*. This distinction is evident also graphically: sizes change according to the position of the nodes.

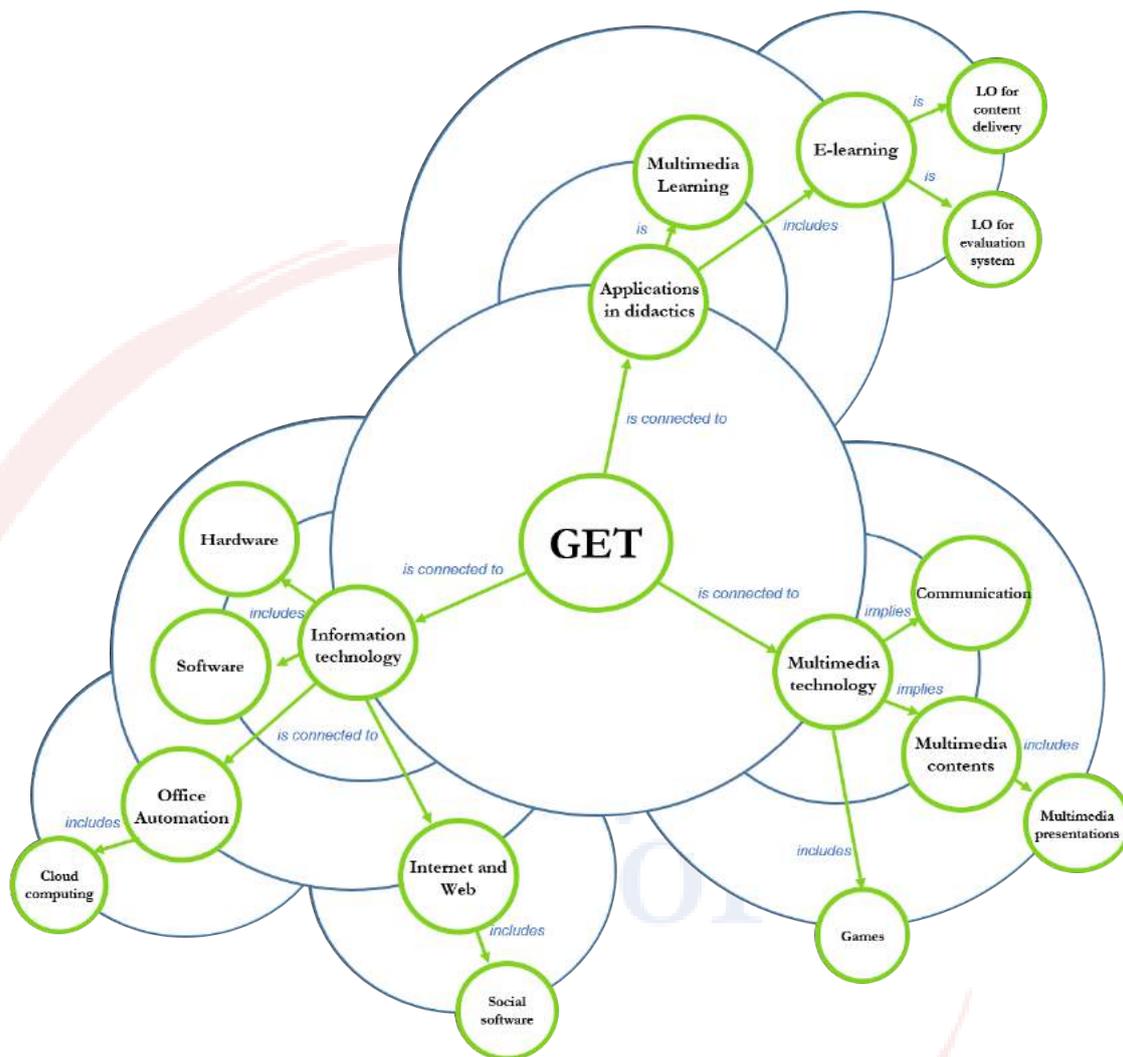


Fig. Concepts, orbits and logical operators at the end of the third step

STEP 4. Revision and reconfiguration of the positions

At this point, after defining the concepts, making all their relationships explicit and putting them within the system according to a precise order, we needed to stop for a while. We realized that our map needed a revision, a sort of “calibration”. Therefore, in this step, we analyzed it again, identified the “flawed” areas and then made all the necessary corrections to make the system more stable and balanced. In general, most of the revisions concerned the following aspects: 1) we inserted new concepts that filled some “conceptual gaps”; 2) we eliminated the redundant concepts, sometimes by merging similar nodes; 3) we put new cross-links by adding further orbits, where we found out some missing connections.

This step was characterized by an iterative cycle of the steps we have described so far. Only when our map reached a certain balance, showed no “conceptual gaps” or repetitions, and had a coherent, solid and logic structure (also to the content expert’s eyes), we went on with the definition of the objectives in the last step.

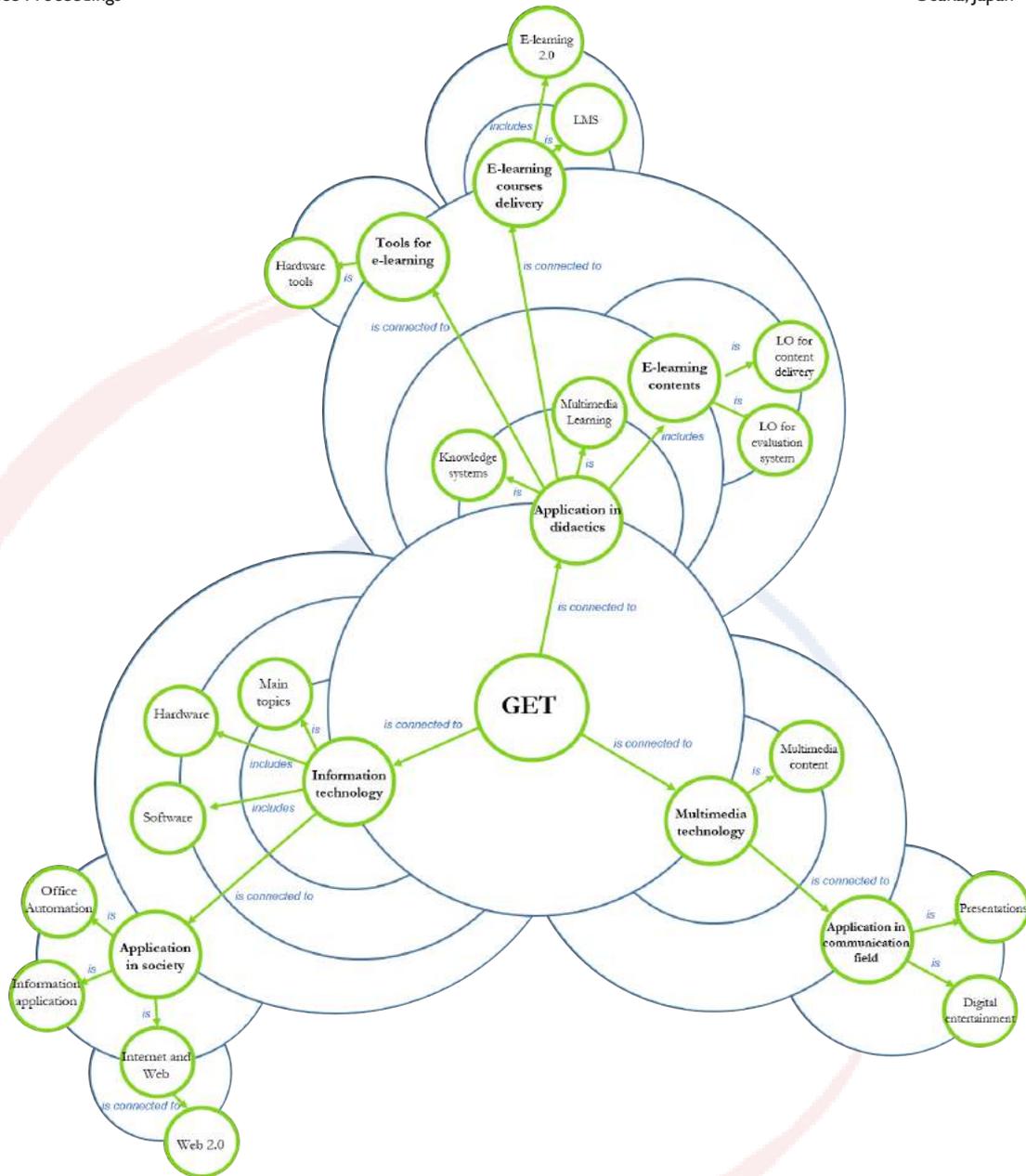


Fig. The map after the revision at the end of the fourth step

STEP 5. Definition of instructional objectives and complexity levels

After organizing our orbital system, we started thinking about the way a competent learner could move within this space and show us his/her acquisition of knowledge on that structure of contents, by performing some specific behaviors. Therefore, by taking inspiration from Mager, we defined the instructional objectives, in terms of observable behaviors.

With the OrBITal map in hand, the definition of clear, effective and measurable objectives was easier to do. Indeed, orbits and logical operators provide a sort of implicit guidance in choosing the behaviors to be measured. In this way, we started from each *nucleus* and while moving to the outer orbits we defined the objectives that marked the way to the furthest areas of the map.

In correspondence of each instructional objective, we then put the complexity levels, by reasoning on the required cognitive activity, according to Bloom's taxonomy.

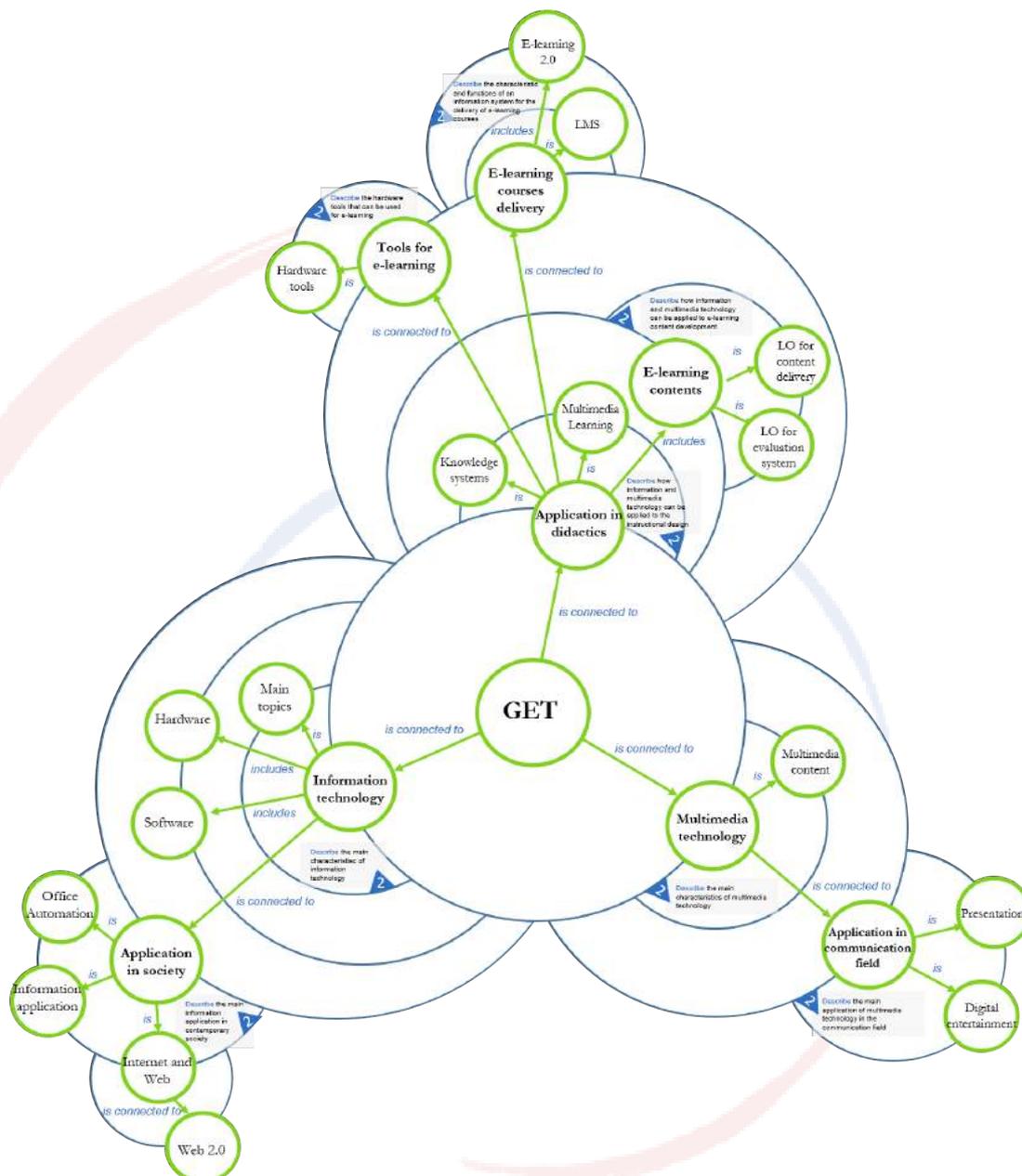


Fig. The completed OrBITal map

4.2. The final output

This work process allowed us to optimize the design times and to reduce the number of outputs in this first phase. Instead of a concept map of the contents and a list (or tree) of instructional objectives, where the correspondence between the various elements often results unclear, we had a single and clear output with all the information we needed: the representation of the knowledge system together with its related structure of observable behaviors.

The OrBITal map facilitated and reduced the time of macro-design and helped instructional designers focus on the design activity with a more holistic, creative (in fact, by reasoning on a non-linear structure, it is more natural and simple to search for new training solutions) and effective approach.

This output simplified also the organization of the micro-design activities: instructional designers could work simultaneously by focusing on specific content areas and their related orbits.

Moreover, in order to simply share the map with all the members of the design team, we used Prezi, a cloud-based software for presentations. This software was particularly suitable for the creation of the OrBITal maps, not only because it lets you share the map online and collaborate with other people simultaneously, but also because it lets you explore the worksheet in a very effective way. Indeed, thanks to Prezi innovative interface (called ZUI, Zooming User Interface), you can arrange textual and graphic elements in a large space, similar to a giant whiteboard, and then move freely in all directions, from overview to the smallest details, thanks to zoom in and zoom out functions.

Among the tools currently on the market, Prezi is the best one to navigate in the space of our OrBITal maps.

5. Conclusions

The results of these early applications show some of the strengths of the OrBITal maps in the instructional design process.

The first benefit relates to the capacity of the OrBITal map of expressing in a schematic, but surely creative, way a set of decisions on what is important and what plays a marginal role in the economy of the course. These maps are an effective tool to identify, select, organize and represent contents, thematic areas, theoretical issues, relationships of dependence, logical implications, in other terms, the core information that are important for the learner to know. Without letting the instructional designer's subjectivity too much free, thanks to the use of standardized rules and logical connectives.

Secondly, with the OrBITal maps, instructional designers can outline with precision a set of explicit and/or implicit recommendations on the nature of prerequisites, i.e. the information the learners need to know before starting the course, in order to understand the topics of the lessons. This property is crucial during the macro-design of the training program, the selection of the different target groups and the integration of preparatory modules for a homogenization of the initial knowledge.

In addition, unlike Novak's concept maps and Buzan's mind maps, the OrBITal maps integrate knowledge systems and instructional objectives of a course into a single output. In particular, they map in detail what will be evaluated in terms of observable behaviors, of "things" that the learners should be able to do in order to demonstrate their comprehension and acquisition of the right information. With a significant impact on the choice of the measuring tools and different tests.

Fourth, the OrBITal maps provide precise information to instructional designers to set the limits of a training program, and influence the strategies and the tools to be adopted. Indeed, the hierarchical structure of the contents and the logical and functional architecture of the instructional objectives guide the creation of teaching materials, the methodology and the entire flow of activities characterizing the course in a strong and direct way.

In the end, we should remember that knowledge does not appear like something isolated or pulverized, but like a “system”, that needs to be described in an aggregated way. In this sense, the netlike dimension of the OrBITal maps allows to represent information in a systemic form, by reproducing the relationships among concepts and instructional objectives, according to a descriptive logic oriented to the details and particularly adequate – both in epistemological and operational terms – to the variability and complexity of knowledge systems.

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The logo for iafor, consisting of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is centered within a large, stylized circular graphic composed of two overlapping, thick, curved lines. One line is light blue and the other is light red, creating a sense of motion or a circular path.

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Language Learning in a Shared Virtual Space

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Abstract

This paper is a preliminary report on the development of a language learning environment called “JaJan!”. *JaJan!* is being developed based on a platform composed of a pair of networked PCs, Kinect depth cameras, and large display screens. It supports creative play in customized video environments for language learning purposes. First, we provide a high-level overview of the platform underlying the *JaJan!* application. Second, we discuss how *JaJan!* can support various aspects of language learning. In this paper, we focus on: (i) learning in context; (ii) personalization of learning materials; (iii) learning with cultural information; (iv) enacting language learning scenarios; and (v) supporting creativity and collaboration. Last, we present the roadmap of our future development plans. Although *JaJan!* is still in early development, we are confident that it will bring profound changes to the experience of language learning.

Related Topics; Virtual immersive language learning, remote collaboration; shared space; Kinect technology; augmented reality; creative learning;

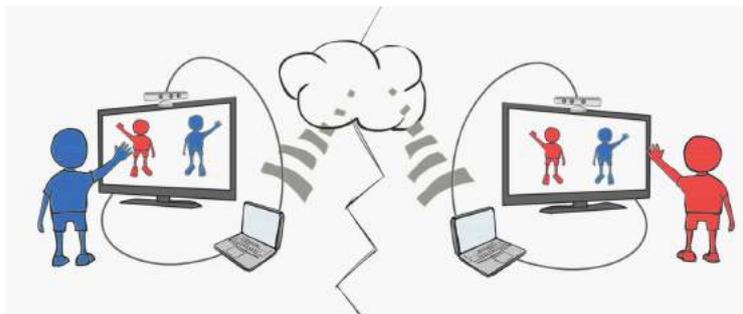
1. Introduction

This paper presents a preliminary report on the development of a virtual language learning application called “*JaJan!*”. *JaJan!* is being developed using the platform developed by the Fluid Interface Group at MIT Media Lab (<http://fluid.media.mit.edu/>). The platform of *JaJan!* is a creative telepresence system, and it was originally designed to facilitate geographically separated families to communicate in the same shared virtual space. *JaJan!* is currently being developed specifically for language learning purposes on top of this platform. In this paper, we specifically discuss how *JaJan!* can support the following aspects of language learning: (i) learning in context; (ii) personalization of learning materials; (iii) learning with cultural information; (iv) enacting language learning scenarios; and (v) supporting creativity and collaboration. Although *JaJan!* is still at an infant stage, we are confident that it will bring profound changes to the ways in which we experience language learning and can make a great contribution to the field of language education.

The outline of this paper is as follows: Section 2 provides a high-level overview of the platform system of *JaJan!* and its basic functionalities. Section 3 presents characteristic features of *JaJan!* relevant to language learning. Here, we discuss how *JaJan!* can support the aspects of language learning mentioned above. Section 4 provides a roadmap of our future plans and concluding remarks.

2. High-level Overview of the Platform

The platform of *JaJan!* is a video mediated communication (VMC) system designed to support creative play in customized environments.¹ This system is composed of a networked PC, a Kinect depth camera, and a HD TV (see Figure 1). Video, audio, user and scene data are streamed directly between clients via a peer-to-peer protocol, and the system can allow users to interact together in virtual environments composed of digital assets layered in 3D space.



[Figure 1] Conceptual Diagram: Remote participants are together in the same shared virtual space

The platform system differs profoundly from conventional video technologies such as Skype by introducing a shared space for interaction. Conventional VMC technologies provide a live window between remote spaces, but they do not support users who

¹ The platform system is called “WaaZam”. See <http://fluid.media.mit.edu/projects/waazam> for more details on WaaZam.

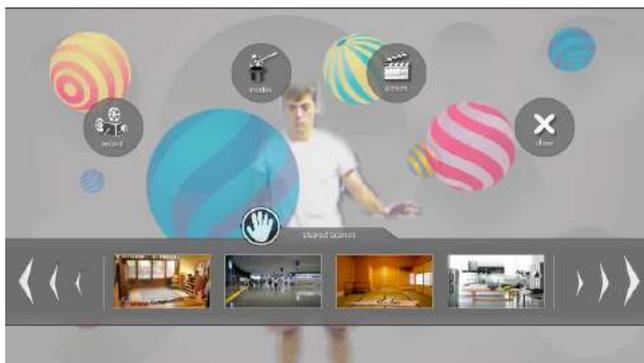
want to have shared experiences in the same virtual space. In this respect, our platform is intrinsically much more interactive and engaging than conventional video medias.²

The system has several rendering modes (see Figure 2). *Object mode* tracks the objects in users' hands and only shows the objects on the screen. *Everywhere mode* tracks the user and supports scaling, transformation, and layering in the depth space. *Ghost mode* allows users to experiment with blending their bodies together and appearing and disappearing at a fixed depth boundary.



[Figure 2] Puppet mode, everywhere mode, transformation mode, and ghost mode (from top left).

This system supports conventional videoconferencing (I see your space and you see mine), a merged “magic mirror” mode (you can appear in my space or I can appear in your space), and constructed fictional environments (where we can be together in digital sets). Users can use gestures or the mouse to transform their video image in the environment. This allows users to step behind objects, hide from each other, and inhabit environment at different scales.



[Figure 3] Gestural Menu via the Kinect Technology

Users can select scenes during a networked session with others via a gestural menu (Figure 3). The menu is designed to allow users to switch between scenes and render-

² Similar ideas have been explored in the past. See, for instance, Ledo et al. (2013), Brubaker et al. (2012), Yarosh, et al. (2010), Morikawa and Maesako (1998), Ishii and Arita (1994), among others.

ing modes (puppet, ghost, transform, or everywhere) during a play session. Users can also choose to record videos from the gestural menu. This feature is designed to allow users to share short videos of play episodes with friends and family.

Users can create their own scene via the scene-maker, which is composed of an asset menu, layout canvas, asset management windows, and scene management windows (Figure 4).



[Figure 4] Scene-Maker User Interface

3. Characteristics and Features of *JaJan!*

As mentioned above, *JaJan!* is being developed specifically for language learning purposes. This section discusses the features of *JaJan!* that contribute to language learning.

3.1. Learning in Context

Language learning requires context(s) where the target language (the language that a learner is learning) is being used. In the best of scenarios these interactions happen with a native speaker of that target language. In this respect, ‘studying-abroad’ is the best way for learning a new language. However, sending all your students abroad is not always feasible and it is not possible for language teachers to facilitate.

JaJan! provides a real-time environment in which users can simulate the experience of studying abroad by enacting scenarios with each other. With *JaJan!*, we can design our learning environments to feel like real situations, so that both users have the experience of being in a real context. For instance, Figure 5 is a screenshot of *JaJan!* where two users practice meeting for the first time in the Narita Airport. One user could be physically located in Japan and the other in the US, but both participants will be able to virtually meet together in customized video spaces.



[Figure 5] *JaJan!* with the scene Narita Airport

3.2. Personalization of Learning Materials

As mentioned above, the platform system allows users to create their own scenes using a user interface called the scene-maker. (see Figure 4 above). This aspect of the application is a great asset to *JaJan!*, especially in terms of customization of learning materials because people learn a new language for different reasons. Accordingly, learning materials should differ depending on learners' needs. For example, if you are learning a new language for traveling purposes, you may want to focus on expressions related to traveling (e.g., how to ask directions; how to order food; how to purchase train tickets; etc.). The fact that you can customize your learning materials inside *JaJan!* is a powerful feature for effective language learning because it makes the environment more flexible to the individual needs of each learner.

3.3. Learning with Cultural Information

Languages are inseparable from the culture in which they originated, and it is important to learn a new language together with the customs of native speakers. For instance, the gesture of bowing plays a critical role in interacting with Japanese people, and it is imperative to teach how to bow or when to bow in addition to teaching actual greeting expressions. Learning various customs of the target culture is also very important. For instance, "taking off shoes at the entrance of a Japanese house" and "how to use chopsticks", should be introduced in a Japanese language class. *JaJan!* provides an interface that allows users to demonstrate non-verbal cultural information and body language.

3.4. Enacting Scenarios

Unlike conventional language textbooks, *JaJan!* requires users to "act scenarios out" inside a shared space using the target language. This encourages users of *JaJan!* to be active learners (as opposed to passive learners) and to re-enforce their communicative skills in the target language. Further, "acting things out" is more engaging and immersive, which is critical to holding the attention of young learners.

3.5. Creativity and Collaboration

One of the unique characteristics of *JaJan!* is that it can foster learners' creativity and collaboration skills. For instance, we can ask students to create a story in the target language; play it using the scene(s) they create; and video-record the interaction in-

side *JaJan!* to create videos for presentation to other students. Students can do this type of activity collaboratively as well as on an individual basis. The focus on shared experiences and customization within *JaJan!* has a great potential to unleash learners' imagination and creativity. We see the platform as a space for generative possibilities where learners can develop new ways to learn by collaborating at a distance and use the web to share videos that illustrate their learning process.

4. Roadmap and Concluding Remarks

As mentioned at the outset of the paper, *JaJan!* is still at an early stage. It is designed in an open ended way so that it can develop - both technically (in terms of the network protocol) and conceptually (from a user experience standpoint). Currently, we plan to focus on implementing key experiential features.³ First, we would like to explore methods of making the environment more interactive and intuitive for learners. One feature that could help to this end is to give objects in the scene renderer "interactive capabilities"; for example, if we can move around objects inside *JaJan!*, "enacting" would become more realistic and natural. We plan to add this feature to *JaJan!*. Second, we would like to make the feature of personalization more fluid and user-friendly. The current user interface of the scene-maker allows users to customize their own scenes and props but it has not been user tested and is not generalizable to all audiences. We plan to make the whole customization experience more cohesive and seamless. Our third focus is to examine how users would use *JaJan!* and what types of features they want to have for language learning. To this end, we plan to conduct user interviews after studying how people interact with the user interface and interact with each other for language learning with *JaJan!* in the future.

Our ultimate objective is practical; we would like to extend *JaJan!* by developing network technologies that will enable it to be used in real classrooms and integrated into existing language curricula. We are confident that *JaJan!* will be an innovative language learning environment for users from all over the world to participate, interact, and collaborate together virtually in a immersive and engaging environment.

³ In terms of engineering, we would like to focus on the question of how we can design the framework in an extendable - cross platform way that will allow others to extend it - and possibly start an open source project for peer to peer learning environments.

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The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is partially overlaid by a large, faint, light blue circular graphic that spans across the middle of the page. Additionally, there are some faint, curved lines in shades of red and blue that appear to be part of a larger design or watermark.

Implementing Second Life in Higher Education: A Review Literature

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0775

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Abstract

Many educators around the world have shown an interest in three-dimensional virtual world such as second life in order to increase the level of student engagement. This paper aims to study on the implementation of second life in Higher Education. The research methodology was analyzing and synthesizing the literature review. The literatures were reviewed to determine items relevant to three-dimension virtual world environment, second life, implementation and outcome. A total of 58 papers, published from 2003 to 2012, were selected from articles, documents, websites and related research. The result of implementing second life in higher education revealed the elements of learning outcome: increase level of student engagement and the elements of concept in using of three-dimensional virtual world in 4 factors: 1) Metaphorical projection 2) Virtual reality system 3) learning module and 4) Designers, students, teachers. These factors are important components of educational virtual world in order to achieve the success of using second life for enhance students engagement in learning.

Keywords: Second life, Higher Education, Engagement

Background of the study

Globalization has brought about dramatic changes to the current world. These changes raise tough challenges about how to develop countries. Due to the changes of social structures in the 21st century many countries are preparing to encounter new society, technologies, economy and politics. Higher educational institutions take advantage of advanced technology by employing games as a form of simulation, in order to enhance their learners' learning processes. Simulation is recognized as a successful tool, widely used in training and work-based learning (Whitton & Moseley, 2012: 9). Nowadays, virtual worlds have appeared in educational systems as a social network, where users create avatars to represent themselves. Users are able to create their own avatars which represent their gender, dress sense or even hairstyle, and their environment as they wish. In virtual worlds users can communicate, move, build and interact with others through their avatars. A virtual world is a three-dimensional virtual world where users are able to fly, walk under water or move to other places, via an internet network. People in virtual worlds are free to do and to be anything, depending upon their own designs (Educause, 2006).

In 2003, Linden Laboratories developed a 'Virtual World Program' by creating 'Second Life' (SL), which enables learners to instantly respond and manage information used to interact with others. Through developed SL, limitations about access to places are eliminated (Rogers, 2011). Nowadays, numbers of virtual educational institutions have been substantially increased. They provide a wealth of knowledge and experience for enhancing the effectiveness of the learning environment (Bulu, 2012). In addition, Gartner, a world leading company which conducts research about technology, mentioned that educational institutions are more likely to adopt virtual worlds into their systems within the next 5-10 years (Gartner Inc, 2009). This is due to the fact that virtual worlds are able to create ideal learning environments which suit a wide range of teaching and learning contexts (Loureiro and Bettencourt, 2011). Virtual worlds powerfully attract learners' interests, because learners can express their true selves, identities and social environments through their created avatars. In doing so, within the use of voice and message, interaction through computer networks under occurs (Rogers, 2011).

It is evident that higher educational institutions have applied SL to their teaching and learning activities by setting up a community of virtual world learners. This community provides a simulated environment of open class, and uses online teaching as a teaching instruction. The faculty of Law at Harvard University is one of higher educational institutions where SL has been adopted. Moreover, Harvard Extension School opens a joined classroom where there is provision of a court simulation. Similarly, Ohio University uses SL as a tool for individual learning development, which allows learners not to need to attend lectures. It also provides a university simulation center known as 'Learning Stores', where learners can access learning anywhere at any time. Importantly, Ohio University created University Simulation, where all university buildings, such as the Learner Center, Learning Center and the Art and Culture Center are included. This University Simulation enables learners to take a journey into it and join a real 'learners' association', at the Learner Center. In joining University Simulation, learners interact and work with others as they would in the real world. Characteristics of virtual worlds which enable users to build and control programs by themselves are useful for learners and teachers in improving learning content. Virtual worlds offer a good chance for teachers to potentially create well-designed instructional materials and tools, which are essential for increasing

interaction between learners and learning content (Zhang, 2007). Virtual worlds are useful for teaching and learning instruction because teachers can use a wide range of instructional materials within the virtual world environment. Also, virtual worlds provide rooms for users to exchange their opinions. As a result, virtual worlds are regarded as effective tools which are used for fostering teaching and learning processes, and successfully motivate learners' interests, thus resulting in better learning outcomes.

A research study of Wang and Braman (2009) indicated that integrated activities in Second Life (SL) helped to enhance learners' learning experiences, and motivated them to place more attention on their learning, which in turn results in increasing the standard of their learning outcomes. In Thailand, Assumption University and Rangsit University were recognized as the first two higher educational institutions where Second Life was adopted for teaching and the learning process. Furthermore, a number of research studies have pointed out that suitable learning and teaching environments, created in virtual worlds, can foster learners' attitudes toward philosophy and psychology (Peter, 2009), and bring about a thorough understanding of suitable teaching and learning environments. The research reveal that developments in technology greatly influence development in teaching and learning methodologies in education. This development aims to enable people to access education more easily.

It can clearly be observed that Second Life has significantly appeared in higher education. Consequently, the researchers were interested in investigating the implementation of Second Life in higher education: a review literature to analyze and synthesize related documents about the implementation of Second Life in higher education.

Research Methodology

This study is a qualitative research. Documentary research was applied to synthesize the concepts of the implementation of Second Life and its learning outcomes in higher education. This study aims to provide content analysis of 58 published documents from 2003 to 2012, including both national and international academic documents, such as: books, academic journals and related research, as well as electronic documents from websites about Second Life. Related documents were closely examined, and in-depth interviews were applied. Then, the collected data was categorized into frequency distribution tables and synthesized to provide a summary of the implementation of Second Life into teaching and learning development. The data obtained from in-depth interviews was analyzed in the same way, to identify components of Second Life used for teaching and learning development, in higher education.

Findings

The findings of psychological studies reveal that ten percent of human memory occurs through reading, and thirty percent through sight. On the contrary, fifty percent of human memory takes place through interaction with others, and up to ninety percent takes place from practice (Rogers, 2011). It was found that elements of Second Life (SL) comprised 4 factors: 1) Metaphorical projection, 2) Virtual reality system, 3) Learning module, and 4) Designers, students, teachers (Sanchez et al., 2000). The findings are discussed in detail, as follows:

1. Metaphorical projection

Metaphorical projection is a bridge between the real world and the virtual world. To have clearer vision, and more comprehensive understanding of metaphorical projection, information gained from the real world and the virtual world needs to be linked together. Virtual world environments are particularly suitable for imparting abstract knowledge, theories or philosophical concepts. That is, the contents of abstract knowledge, theories or philosophical concepts are beyond seeing or illustrating in the real world, cannot be described through examples, and cannot be touched, sensed or illustrated through graphs or instructions. Metaphorical projection can be categorized into four planes (Sanchez et al., 2000), as follows:

- 1.1. A structural plane is a symbol used for linking knowledge between the real world and the virtual world. This symbol, or metaphor, creates virtual world environments which provide better understanding for learners (Structural similarity between the virtual world scenario and learners' previous experiences will help learners to better understand the contents).
- 1.2. A learning plane serves to design teaching methodologies. For example, a learning plane is used to design activities which enable learners to engage in virtual worlds pertaining to the roles of teacher and learner. The structural and learning planes are the most crucial components of the metaphorical projection, because they determine the other two additional planes.
- 1.3. A navigation plane should be designed based upon how learners browse and move around in virtual worlds (walking, driving, flying, using transportation tools, etc.) dependent upon contents and learners' perspectives.
- 1.4. An interaction plane establishes how learners interact within virtual worlds, how they manipulate what they encounter, and how they communicate with others.

To this point, it can be summarized that the SL program accurately simulates every learning environment, and enhances the effectiveness of human memory. Under an applicable virtual world environment, learners are able to fully practice required skills, construct new skills and reduce their anxiety, leading learners to recognize their own potential. Additionally, their abilities of learning and problem solving will be increased too. It was also found that virtual world environments are able to motivate learners to utilize knowledge gained from practice as a means to solve problems, and to enable learners to be more engaged in classroom activities. Besides, virtual world environments encourage learners to adopt creative education, which is an important skill in problem solving (Hsiao et al., 2006) because imagination brings about creativity, new concepts and problem solving methods. Through this process a body of knowledge can be constructed (Hung, Rauch and Liaw, 2010). Creative education will become successful when the learning environment enables learners to freely share and exchange their opinions, essential to constructing a new body of knowledge and concepts (Infinite innovation, 2006).

California State University created a SL program used for its psychology course about hallucinations, in order to facilitate learners to have experience and comprehensive understanding about psychiatric patients who encountered hallucinations (Yellowlees et al., 2006). In addition, SL is used to describe brain disorders, or situations which are difficult to understand or are rarely seen in daily life. Advantages of virtual world environments are: 1) virtual world environments are less costly when compared to environments in the real world; for example, expensive instructional materials in the

real world can be simulated in a virtual world; 2) virtual worlds create more interaction, because there are no limitations of time and place; learners are able to learn anywhere and at anytime; 3) virtual worlds reduce risks and dangers which obviously occur in the real world; 4) virtual worlds bring about creativity because learners build up their creative imagination in presenting learning contents and patterns; virtual worlds also motivate learners to seek additional knowledge, and; 5) virtual worlds offer room for learners to share knowledge and opinions, leading to learners' diverse perspectives where learners can use social media to exchange knowledge and support each other's thoughts.

2. Virtual reality system

A virtual reality system is constructed by a computer program based upon a three-dimensional virtual world environment, which allows learners to engage and interact with others in virtual worlds via a computer system (Sanchez et al., 2000). Features of the computer program are presented, as follows:

2.1 Presence: learners will feel that they are in a real place, and not in a computer-simulated scenario.

2.2 Navigation: learners can take the role as immobile observers or travelers in virtual worlds. They can stay still or move around in different ways.

2.3 Scale: the scale of a virtual world environment can be adjusted by changing the size of users in virtual worlds (It is not to maximize the size of virtual worlds, but to minimize the size of the users.)

2.4 Viewpoint: learners can change their perspectives whenever they want, or even use the viewpoints of another user. Those can also be floating or moving viewpoints.

2.5 User-environment interaction: learners can manipulate and modify virtual worlds freely. They can move virtual objects by hand, eye movement or voice recognition, and have the ability to create and adjust the virtual world environment.

2.6 Autonomy: to achieve the goals of learning, a virtual world environment is autonomous and able to change all the time. Actions may take place and respond to the goals, irrespective of the learner's interactions.

2.7 Co-operative learning: under the networked environments, several learners can share virtual world spaces at the same time.

In order to create interesting, applicable, convenient and attractive virtual world systems, learners' computer competencies should be taken into account. To be more specific, a virtual world program should facilitate new learners by providing an introduction and site navigation. On the other hand, virtual world system programmers should suit experienced learners' needs with a wide range of computer competencies regarding their individual potential (Bignell and Parson. 2010). In a teaching and learning context, SL is used via two-way communication, one-way communication or face-to-face communication. SL provides a computer network which allows learners to communicate through different channels. Therefore, SL plays a significant role in teaching and learning development. Virtual world systems are categorized into two types, as follows: The first type is 'Synchronous' learning, where teaching and learning activities take place at the same time. All learners must attend classes and interact with each other at the same time. Examples of synchronous teaching and learning activities are: chat and information, sounds, pictures and

animation exchanging. The second type is 'Asynchronous' learning, where teaching and learning activities are conducted in a virtual world, and where learners and teachers are not required to engage in activities at the same time. One example of asynchronous learning activities is e-mail, where learners can access e-mail anywhere and at anytime (Zhao, 1998). Asynchronous learning gives maximum benefits to teachers and learners.

The example from the study of Herold (2010) demonstrated that the teaching measurement in SL is conducted by the use of a 'blended learning model', combined with teaching in the classroom. It was found that having knowledge of techniques, or knowledge of computers, affected learning in the virtual world, of students in higher education, less than the measurement of learning efficiency. Using a virtual world system for maximum effectiveness should realize encouraged participation. An operating system for inspection was required, whether they participated in the activity or not. It included creating the system to be more interesting for learning, thereby encouraging a desire for learning. In addition, students could create, edit or change the system, resulting in more class participation.

When analyzing the nature of learning in the regular classroom and the virtual classroom, it was found that the virtual classroom can be accessed anywhere and at anytime, and also have an unlimited number of students. This can be summarized as follows:

Table of comparison between the regular classroom and the virtual classroom

Factors	Virtual Classroom	Regular Classroom
Students	<ul style="list-style-type: none"> - Self organized learning experiences - Persistence with or without user's presence - Learn anywhere anytime - Rapid Response - Socialization by develop close co-operation with others within and outside class - Real time and direct interaction with visitors who can enter the class (other instructors for instance). - Feel belonging in a community, presence, sense of class community, high level of engagement, strong bond between students. 	<ul style="list-style-type: none"> - Presence in Classroom - Difficult to develop close co-operation with others within and outside class - Take more time to interact and response
Teachers	<ul style="list-style-type: none"> - Flexibility in time-space 	<ul style="list-style-type: none"> - Time is limited only in

	<ul style="list-style-type: none"> - Follow students process response to students immediately - Very high motivation for new teaching methods and tools - Computer literacy - Willing to have a closer interaction with students - Being able to be a facilitator and a moderator 	<p>classroom</p> <ul style="list-style-type: none"> - Take time to response and have close interaction with students - Knowledge of technology is required - Being a lecturer rather than facilitator and moderator
Classroom	<ul style="list-style-type: none"> - learn anywhere anytime - Interactive environment - Interactivity of multi-media learning - Use computer for learning 	<ul style="list-style-type: none"> -Learning is limited in classroom - Class schedule is fixed - Resources is limited.

It was also found that the virtual classroom still had many limitations: 1) equipment and software for schooling in a virtual classroom was expensive, 2) delays in waiting for feedback, thus students could not get answers immediately when they wanted them from the teacher, 3) students must have the necessary skills to use computers efficiently, 4) studying interaction is not natural or is too little, and 5) most students still lacked responsibility for self-learning, which is an important attribute of learning in the virtual classroom.

3. Learning module

The learning module is the process of creating the lessons. It required consideration of the purposes of the study and to realize the participation of the students, and was applied using technology that supported the schooling. The use of SL was another tool that could enable the students to access lessons easily by using only a mobile phone and network communications (Gardner, 2006), and create good lessons. The following processes required both the theoretical and practical contents to be as correct as the theory. They should indicate which theory is the best for development. In presenting, the contents must be placed in order: from easy to difficult, from a general overview to detailed subtopics, and from the concrete to the abstract. This led to benefits gained in the essential theory of learning, as well. The levels of increase for easy and difficult should suit the target group (E-Learning Association of Thailand, 2013). Using the SL could be designed to meet the lifestyle, and then modified to match the current situation. Using the basic principles of SL enabled the space for sharing experiences, participating, and demonstrating opinions that could upgrade the skill developments of students.

One example from the study of Meggs et al. (2011) adopted the SL for use with students in the Faculty of Interior Design. A part of the lesson would present the students' designs in the form of displays for an exhibition. Students had to analyze

and criticize their work, and that of peer students, in the form of a message box shown in the SL. As a result, students were taught skills in outlining the strengths and weaknesses of their work and that of others. Furthermore, students were also trained in communication skills, explained the concepts of work, and they could study the work of senior students who had studied in the previous semester from the gallery in the SL. Selective criticism lessons between teachers and students, through video or inquiry in the SL, was the method used to increase participation in the lessons or give freedom to students. Integrating the groups, or selecting the topics students are interested in, was also another way to increase motivation in the lessons.

With regard to business administration, Johnson (2008) said SL program users could create and manage the objectives and participation of activities, social varieties and commercial activities. Activities supporting in-depth aspects and networks, which helped running business and stores as well as the concepts relating to business in the SL, were a unique economic model. The SL had its own monetary and currency exchange service (Linden), and transactions in the SL could flourish and grow just as in the real world. Protection of the rights of intellectual property and virtual objects created in the SL was also established. In addition, users could also convert Linden dollars in the SL with real world money. Business activities in SL entrepreneurs enabled the start up and running of virtual businesses (Mennecke, 2008), which conforms with Castronova (2005) who demonstrated diverse environments, and the motivation to make the users play roles in and participate in social and business activities. Businesses in the SL were the functions that included elements related to market demand and supply of chain management and information systems, including ideas related to: the purchase processes of consumers, characteristics of goods and services, the roles of human behavior and the processes of entrepreneurs. Applying the SL to marketing focused upon the significance of organizational and contextual factors influencing e-commerce systems. Therefore, students could learn, attend the activities and increase their experiences of solving real-life problems. As presented by business leaders and entrepreneurs, the SL offered a unique environment to facilitate the training of the vocational experience of students (Balkun, 2008). He said that participated learning and teaching was not only participation from students but that the environment around them also affected the interaction of students, and further their motivation to engage in e-commerce in the form of SL (Balkun, 2008).

4. Designers, students, and teachers

Designers', students' and teachers' educational studies demonstrated education from past to present and through to the future. The schooling patterns changed as the context of technology played more important roles. In addition, current technology can be applied to support various activities for schooling very well. It merged the interaction among designers, teachers and students. Since 2000 onwards, SL has gradually played a more important role in assisting schooling. Instructional design has provided great roles in offering students knowledge which is based upon the process of learning. The designer should be aware that the content is accurate, and reflects the academic principles. Furthermore, the learning modules have attributed to the development of content (E-Learning Association of Thailand, 2013). For example, SL was a part of the curriculum of business administration. Initially, teachers played a role in the concepts and the framework of the curriculum. This also included coordination among joint-stock companies. Planning and running a business on the

SL involved the issue of a questionnaire for students to explore the understandings of property and culture, and economic systems existed in the SL for developing models of business plans. Students are enabled to attempt doing business in a simulated world for the practical experiences of learning. The activities of entrepreneurs and businesses in the virtual world showed that students responded in positive ways to the SL, and that the SL provided schooling which was a useful environment for teachers. They accepted that the SL might be a powerful tool for communication, because it allows students to interact with teachers in a casual and flexible manner and promotes participation in the lessons. The application of the systems in a computer has been designed to change needs of students: changes related to schooling by approaching the lessons as much as possible. Therefore, it was necessary to create a system that effectively could connect students, teachers and lessons together. We needed experts who had expertise in computer operating systems which could meet the needs of students and teachers (Potkonjak, 2010). Creating a simulated environment in the operating system was challenging to the ability of the designers and the SL creators, because teachers who had knowledge and understanding of the lessons tended to have no expertise in created or simulated situations involving the lessons. In addition, technicians had no expertise so they could not simulate the environment of students without prior knowledge and understanding of the lessons. Thus, the cooperation of personnel of the board and technical experts was important in creating the simulated environment (Keengwe, 2009). Teachers should have basic tests to find out the activities which would support student interest and involvement in the lessons as much as possible. They should also focus on the factors that lead to failure, such as problems with communication or understanding the SL application. These factors should be driven to a minimum for the required importance of practice in the learning program application, in order to prevent problems in practical use.

Conclusion:

The study to apply 'Second life' in higher education: the literature review at this time found that there were necessary elements of second life application in higher education: 1) the metaphorical presentation, 2) the virtual world, 3) the learning modules, and 4) designers, teachers and students. All four elements were learning which focused upon students and which supported them in building knowledge by themselves. It conformed to the 'Constructionism theory' of Papert (1991) (cited in the University of Technology, Thonburi, 2005) based upon two creation processes: 1) the process that students learnt new knowledge by themselves, but it did not get the flow of information into the brains of students alone: knowledge derived from the interpretation of the experience gained, and 2) the learning process would be the most effective if it was meaningful to students. Constructionism held the following principles: 1) the principle that students have built knowledge by themselves. The Constructionism principle was the building of knowledge by themselves, and where students completed learning activities or had significant interaction with their external environment. It included the interaction of student knowledge, experiences and their external environment. Learning could be effective if students understood themselves and considered the importance of what they have learned, as well as be able to transfer knowledge between the new and the old (in that they knew what they have learned), and thus build up additional new knowledge. When considering that regular school learning happens in the classroom; 2) the principle of a student center was conducted and teachers should try to arrange the teaching atmosphere to allow

students to practice their learning activities with many choices, and happily learn to link between new knowledge and old knowledge. Teachers were only assistants and facilitators; 3) learning principles from the experience and the environment highlighted the collaborative importance of social values. Thus, students considered that humanism was another important source of knowledge, when teaching Constructionism theory. It was deemed to be an experience of facing the real world, if students considered that humans are a key source of knowledge, and they can share knowledge. When they graduate, it is easy to adapt themselves and work efficiently with other people; and 4) the principle used technology as a tool. Seeking for answers from multiple knowledge resources results in self-ingrained behaviors of students; "Learn how to learn".

Recommendation:

The study to apply Second life to higher education: the literature review has the following recommendations:

1. Recommendations for higher educational institutions

Higher educational institutions should use Second life to develop schooling and foster the skills of students in the higher education. It is because Second life is similar to online games which allow students to play by using characters to represent them. The game will provide many activities for students, depending upon what they create or imagine. Teachers can build learning activities for Second life as a continuous activity. The levels of ease and difficulty will be classified in order to encourage students to overcome such activities. However, second life should also be used with schooling in the classroom, and take into account the age of students in individual cases. In particular, communication must conform to being for the purposes of education only. It should not violate personal life, and private moments should not be shared nor violated. With regard to the contents in the case of building materials under the Second life world, the actual copyright of the owner must be considered, because all information has probably been specified as the copyright of the Second life builder.

2. Recommendations for further research

Further study should be conducted in order to develop the virtual world of Second life, in order to strengthen the essential skills required for vocational students. As most current schooling in vocational education is learning a profession, so to apply knowledge to that profession. It differs from learning in general education. Practical classes are much more than theoretical classes, and result in students having greater working skills, than general educational students, because of their real life experiences. However, there is theoretical learning that leads to real practice. Thus, applying technology is another way to contribute knowledge and understanding to students in lessons, through real practices adding more skills before entering the labor market, in the future.

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The Different Involvement of Kinect Games in Physical Education Courses Effect on the Baseball Batting Skill Learning Performance of High School Students

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Abstract

The purpose of this study was to discuss the different involvement of Kinect games in high school physical education courses. The researchers investigated 4 classes for 8-week physical education courses. In the class I, the teacher gave a brief introduction for batting skills and the students practiced batting skills by using baseball batting games from Kinect. In the class II, the teacher applied different upper limbs exercise games from Kinect including baseball, tennis, finishing and skiing indirectly to teach students the batting skills. In the class III, the teacher applied tee ball as a teaching instrument to let students practice baseball. The class IV, the students as a control group were taught by the whole body exercises, such as running and swimming. The researchers measured all students on the baseball batting skill learning performance by the batting distance at the beginning and the end of 10-week practice. Pretest and posttest were administered by employing a baseball batting tee. The results found out the students who enrolled in the classes with Kinect baseball batting games showed more significantly improvement on batting distance than in the tee ball group and the control group. The findings of this study indicated use Kinect as teaching instrument can enhance the batting performance. Involving kinect games differently can assist teachers to reach different teaching goals in physical education.

Keywords: e-learning, Physical Education, Kinect, motion-sensor game

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Background

There are three student-centered models to learning in Physical Education: Sport Education (SE), Tactical Games (TG), and Cooperative Learning (CL) (Ben, 2004). SE, TG, and CL can provide structures or instructional model for situation learning based on the meaningful, purposeful and authentic learning activities. The students should be considered when implementing three instructional models: the teacher is a facilitator, students are active learners, and students work in small groups and modified games, learning activities are interesting and challenging, and students are held accountable.

Educational games are designed for specific educational goal and focused on specific pedagogical aspects. Educational games are less available to compare with normal games. Those are leaving the user in a passive role and control the game (Daniel Burgos, Colin Tattersall, & Rob Koper, 2007). When using games in e-learning, it's important to re-purpose generic games by teachers and educational technologists. It can be used in different e-learning platforms and environments. Pedagogy, and structured resources, files and links are combined to form Units of Learning (Koper & Tattersall, 2005).

There are several key points to hit the ball. Firstly, balance is the most important, the rotation of the batter's center of gravity. Secondly, through the hip rotation, the batter's weight shifts from the backside forward to the front side. When the swing, the moving of hands should be like a pendulum, and remain inside the ball (Walter, 2002). To complete the swing, the hitter extends his full arm. The hands should be in the palm-up and palm-down positions. When the hitter follows through to extension, and balance to the end posture. The follow-through motion is also an important point to hit the ball (Figure 1).

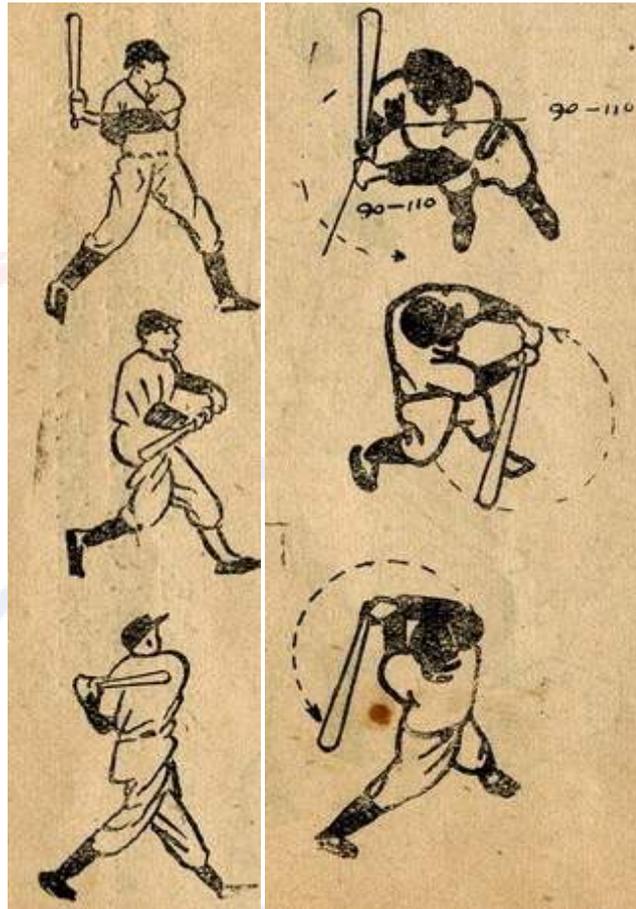


Figure 1. The full motion to hit a ball

Reference: 國防部(1954)。棒球初步。台北市：國防部。

The players should work on the quick, compact stroke, using the mechanics of positive procedures. The batting-tee drill can be used as a tool. The players can use a weighted bat and a fungo bat 100 times a day with each hand. That's 400 swings a day and more than 2000 swings each week. That can make the player keep muscle power and fitness. The players should perform the skills repetitively, and practice hitting against quality pitching (Walter, 2002).

Kinect is a motion sensing input device by Microsoft for the Xbox 360 video game console and Windows PCs. Based around a webcam-style add-on peripheral for the Xbox 360 console, it enables users to control and interact with the Xbox 360 without the need to touch a game controller, through a natural user interface using gestures and spoken commands. The Kinect sensor is a horizontal bar connected to a small base with a motorized pivot. The device features an "RGB camera, depth sensor and multi-array microphone running proprietary software", which provide full-body 3D motion capture, facial recognition and voice recognition capabilities. The depth sensor consists of an infrared laser projector combined with a monochrome CMOS

sensor, which captures video data in 3D under any ambient light conditions. The sensing range of the depth sensor is adjustable, and the Kinect software is capable of automatically calibrating the sensor based on game play and the player's physical environment, accommodating for the presence of furniture or other obstacles. The software technology enables advanced gesture recognition, facial recognition and voice recognition. Kinect is capable of simultaneously tracking up to six people, including two active players for motion analysis with a feature extraction of 20 joints per player (Xbox, 2013).

Kinect Sports: Season Two consists of six sports which can be accessed from the main menu, which can be played in single or multiplayer: golf, darts, baseball, skiing, tennis, and American football. The games are controlled through Microsoft's Kinect device, which allows players to control the game through gestures and speech recognition without the need of any physical game controller. The player controls the sports by mimicking how the sports are played in real life without the equipment that usually is associated with them (Xbox, 2013). Baseball game from Kinect Sports: Season Two has several rules. Two players play the role as a batter and a pitcher. When catching high fly ball, the player also plays as an outfielder. One of the player get 2 scores continually, the one wins the contest and the game is over. The batter can choose left-handed or right-handed. Strike is existed, no balls. 3 times strike makes the player strike out. When the batter hit the fly ball, the outfielder can't catch the ball, the player will be put-out. Otherwise, the player will be hit.

The purpose of this study was to discuss the different involvement of Kinect games in high school physical education courses. To find out the students in Kinect baseball program, the students in Kinect mix exercise program, the students in Tee ball program and the students with traditional education program whether the differences in the hitting distance. Through the pre-test and post-test, the students in each course could be progress or regress in hitting distance. The result of this study could be proved that e-learning is effective to help teaching baseball. Kinect or other motion controller can be used as physical education instruments in the future. The purposes are following:

1. The different time involvement effect on batting distance and distance improvement
2. The different batting motion practices effect on batting distance and distance improvement

Method

The researchers investigated 4 classes for 8-week physical education courses, 3 hours per week. The number of participants and intervention in each class showed on Table 1. The Participants are high school students in Tainan, Taiwan, who are 14-15 years old. In the class I, the teacher gave a brief introduction for batting skills and the students practiced batting skills by using baseball batting games from Kinect. In the class II, the teacher applied different upper limbs exercise games from Kinect including baseball, tennis, finishing and skiing indirectly to teach students the batting skills. In the class III, the teacher applied tee ball as a teaching instrument to let students practice baseball. The class IV, the students as a control group were taught by the whole body exercises, such as running and swimming.

The researchers measured all students on the baseball batting skill learning performance by the batting distance at the beginning and the end of 8-week practice. Pretest and posttest were administered by employing a baseball batting tee. The students hit the baseball batting tee for 10 times. And then, the longest distance is estimated for pretest or posttest.

Table.1 The Number of Participants and Intervention in Each Class

Class	Intervention	N
I	Baseball Game from Kinect Sports: Season Two	31
II	Baseball, tennis, finishing and skiing games from Kinect Sports: Season Two	27
III	Tee Ball	35
IV	Control Group	35
	Total	128

Result

128 students in this experiment were assigned to 4 classes. 31 students (16%) were in class I, 27 students (13.9%) were in class II, 35 students (18%) were in class III, and 35 students (18%) were in class IV. The longest distance in pretest is 26.97 ± 11.09 m, and there is no significantly difference between all classes ($F(2, 126) = 0.40$, $p = .75$). The longest distance in post-test is 26.97 ± 11.09 m, and there is no significantly different between all classes ($F(2, 126) = 0.87$, $p = .74$). Moreover, the distance difference between pre-test and post-test is significantly different in Class I > III, IV ($F(2, 126) = 2.95$, $p < .05$). Table 2 shows more details.

Table. 2 ANOVA analysis of Pre-test, Post-test distance and distance improvement

	Class	N	MEAN	SD	F	
Pre-test	I	31	27.87	10.50	0.40	
Distance	II	27	24.94	12.72		
	III	35	27.14	11.13		
	IV	35	27.57	10.49		
	Total	128	26.97	11.09		
Post-test	I	31	33.62	13.70	0.87	
Distance	II	27	28.31	17.17		
	III	35	28.29	16.70		
	IV	35	28.66	14.75		
	Total	128	29.69	15.58		
Distance improvement	I	31	5.75	5.64	2.95 *	
	II	27	3.37	6.61		Class I > III, IV
	III	35	1.14	9.66		
	IV	35	1.09	6.45		
	Total	128	2.72	7.51		

Therefore, we divided all students in classes into 2 groups, regress group and progress group. The regress group was assigned students whose hitting distance in pre-test was longer than in post-test. On the contrary, the progress group was assigned students whose hitting distance in post-test was longer than in pre-test. The result showed significantly difference in Class I and II ($\chi^2(3) = 13.64$, $p < .05$). In both class I and II, more students are in progress group than in regress group. The baseball game from Kinect was used in both class I and II. The Kinect can improve the students' performance in hitting distance.

Table 3. Chi-square analysis of regress group and progress group

Class		Regress Group	Progress Group	Total	
I	Count	5	26	31	$\chi^2=13.64^*$
	% within Class	16.1%	83.9%	100.0%	$Df=3$
II	Count	7	20	27	$*p<.05$
	% within Class	25.9%	74.1%	100.0%	
III	Count	19	16	35	
	% within Class	54.3%	45.7%	100.0%	
IV	Count	17	18	35	
	% within Class	48.6%	51.4%	100.0%	

Discussion

The difference on practicing follow-through motion

There were more progressive students in the Kinect baseball game group and the Kinect mix game group. No matter the courses were integrated with only baseball games or with four-type sport mix games. In the Kinect game groups, a batter had to complete hit motion to hit the ball, so that the ball would be hit far and hard to catch. If the motion was incomplete, the Kinect would determine as strike or foul ball. The students in the Kinect baseball game were through the same playing pattern, so the students had to complete their hitting motion to achieve the goal. As a batter, the students had to complete hit motion to hit the ball, so that their balls would be hit far and hard to catch. If the motion was incomplete, the ball would be strike or foul ball. Therefore, the students practice more time than other groups. Their skills became more mature, so their performances were progressive obviously. Although, the class in only Kinect baseball game had more chance to practice the hitting skill than the mix games. The mix games were through the same playing pattern, the students also had to complete their hitting motion to achieve the goal. Therefore, the students in Kinect mix game were also improve their performance.

As for Tee ball group, it should be a good tool in teaching baseball. It was similar to baseball, including the concept, the rule, the tools, or others. However, we observed that the students hit the ball without the follow-through motion. They just finished the swing phase after the ball was batted. The incomplete motion was the main point not to make progress in the students' hitting distance. The result provided evidences to support the completing batting motion to enhance the batting distance in the baseball handbook (Walter, 2002).

The difference on practicing frequency among different groups

The students in Kinect baseball game improved more hitting distance than others. The students in Kinect baseball game group practiced more than 15 times to hit balls in an hour, but others only practice 3-5 times an hour. Walter (2002) said that's 400 swings a day and more than 2000 swings each week. The frequency of practices is important to a good batter.

Suggestion

The follow-through motion is an important point to hit the ball. More chances to practice is the key to improve the batting skill, either. Motion sensor games can be used as assisted tools to practicing the whole process in physical education. The Kinect can be used as an instrumental in teaching baseball to increase practicing chances.

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WebELS: Realizing e-Learning in Higher Education over Low Bandwidth Environment

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Abstract

As information and communication technology (ICT) becomes more robust and widely used, there is an increasing number of higher educational institutions (HEI) adopting e-Learning system for delivering various educational programs. However, there are underlying challenges in the successful implementation of e-Learning approach in higher education, such as the lack of IT skills for most instructors, the complexity of some e-Learning platforms, technical limitation of users' environment like the network bandwidth and computer hardware, among others. In this paper, we present the design and implementation of the Web-based e-Learning System (WebELS) for enabling the globalization of higher education in science and technology particularly in low bandwidth environment. The system supports asynchronous and synchronous e-Learning approaches, such as on-demand learning for self-learning, online meeting for multi-location group discussion and online lecture for real-time remote lecture distribution. The system has been designed to address the difficulty of creating and maintaining an e-learning course to non-IT user by providing an easy-to-use course authoring tool. It has user management system where users are classified hierarchically as admin, faculty, staff, and students. It also has course management system for allowing instructors to assign permission to courses visible only to specific viewer group. Additionally, it supports archiving and dissemination of multimedia contents on the Internet by its contents management system. Usage in low bandwidth environment such as a dial-up line has been the design goal in order to reach a wider range of users especially in developing countries.

Keywords: Advanced learning technologies, e-Learning, distance learning, online learning, blended learning, online presentation, video meeting, virtual presentation

1. Introduction

As information and communications technology (ICT) becomes more robust and widely used, there is an increasing number of higher educational institutions (HEI) adopting e-Learning system for delivering various educational programs, such as continuous education, online academic lecture, online meeting and similar activities (Kim, et al, 2006). The enthusiasm to adopt e-Learning system in higher education is primarily to address the need of those individuals who have limited opportunities for traditional classroom-based education due to time and/or distance limitations. Nowadays, graduate students and company employees are compelled to gain advanced knowledge not only to be globally competitive as an individual but to contribute for the sustainable growth and development of a nation (Ueno, 2002). E-Learning at the higher educational level supports the development of a skilled, "ICT-capable" labor force that may attract direct foreign investment, as well as research and development activities and university-private sector links that are important drivers of innovation and growth in advanced economies (ADB, 2009).

There are three basic e-Learning approaches - (1) Asynchronous e-Learning which is achieved by online self-learning at their own pace and time through course content available online, and may have supplemental activities such as discussion boards and e-mail, (2) Synchronous e-Learning which is achieved by real-time interaction between instructors and students and often facilitated by activities like video conferencing and chat, and (3) Hybrid e-Learning where the activities of both asynchronous and synchronous approaches are combined to improve the quality of online education (Hrastinski, 2008a). Synchronous e-Learning approach, as a complement to asynchronous approach, can positively affect personal participation from learners by inducing interest and motivation (Hrastinski, 2008b). Nowadays, there are e-Learning technologies supporting each approach, but it is very rare to find an all-in-one technology that supports a hybrid e-Learning system.

Although ICT in education has been existing in the past few years, there is still an underlying challenges in its successful implementation (Carnoy, 2004). Stakeholders in the implementation of a Web-based e-Learning system must possess ICT skills. Some instructors are conservative on introducing e-Learning as some of them do not have the necessary IT skills, nor do they have the specific trainings needed to be able to use specific e-Learning system. Moreover, some systems have complex method of creating and updating an e-Learning course demanding time and effort, and usually requires an instructional designer with an IT skills. Because of this, there is scarcity of educational content in the higher education in science and technology, coupled with issues on security and exclusivity of educational resources.

Another challenge in the implementation of an e-Learning system is the technical limitations, i.e., network bandwidth and computer hardware. As most of the online courses integrates different media such as text, images, audio and video, some students might not have the network access and computer hardware capable enough to support multimedia content (Lee, et al., 1996), (Mohan, et al., 1999). In the case of an online lecture or meeting, video conferencing requires high-bandwidth network for providing better output quality (Trauner, et al., 2005). Thus, the usability of an e-Learning system in low bandwidth environment is limited in this situation.

In this paper, we present the design and implementation of the Web-based e-Learning System (WebELS) for enabling the globalization of higher education in science and technology particularly in low bandwidth environment (Ueno, et al., 2011). Through continuous development, the new system supports a variety of asynchronous and synchronous e-Learning activities, such as on-demand learning for self-learning, online meeting for multi-location group discussion and online lecture for real-time remote lecture distribution. The system has been designed to address the difficulty of creating and maintaining an e-learning course to non-IT user by providing an easy-to-use course authoring tool that can integrate various media such as slide presentation, image, audio, and video data. It has user management system where users are classified hierarchically as admin, faculty, staff, and students, with the function to assign user to several viewer groups. It also has course management system for allowing instructors to assign permission to courses visible only to specific viewer group. Additionally, it supports archiving and dissemination of multimedia contents on the Internet by its contents management system. Usage in low bandwidth environment such as a dial-up line has been the design goal in order to reach a wider range of users especially in developing countries such as in Asia and Africa.

2. Overview of WebELS

2.1 Design Concept (Ueno, et al, 2011)

WebELS is designed to provide an advanced e-Learning platform for globalizing higher education focusing on authoring and dissemination of multimedia contents, aiming to assist instructors to archive their learning materials on the web for on-demand learning, online meeting and online lecture. We have analyzed the characteristics of higher education from the point of view of e-Learning. Some key characteristics are in the following:

- PhD students are research partners as well as students whose activities as individual scientists are involved in higher education. Joining research meetings and giving research presentations at international conferences are typical examples. Slide-based presentation followed by discussions is a typical style.
- Slide-based lecture is a typical style of classroom lecture, and slide-based playback with voice and synchronized cursors on a learner's computer seems to be reasonable for on-demand self learning. High quality slides with voice and cursor are requested to be played back in a narrow-band Internet.
- Powerful authoring features for non-IT users are strongly requested so that professors can create and edit their own educational materials on their personal computers and upload them onto the WebELS server.
- E-Learning system must be used on multiple operating systems which include Windows, Mac OS and Linux in a global situation over the Internet.

2.2 System Design

WebELS is designed to meet the requirements mainly for supporting global higher education as a content management e-Learning system (CMS). It is an all-in-one e-Learning system supporting synchronous and asynchronous approach implemented

in two separate modules, i.e., WebELS Learning for online self-learning, and WebELS Meeting for online meeting and lecture.

WebELS is a client-server system functioning on a Linux OS on the server-side, and Java and Flash applications for the client user interfaces for achieving a multiple OS system to be used in Windows, Mac OS and Linux. Every user can use the system over the Internet using any popular browser, such as Internet Explorer, Google Chrome, Mozilla Firefox and Safari.

2.2.1 Asynchronous e-Learning Approach

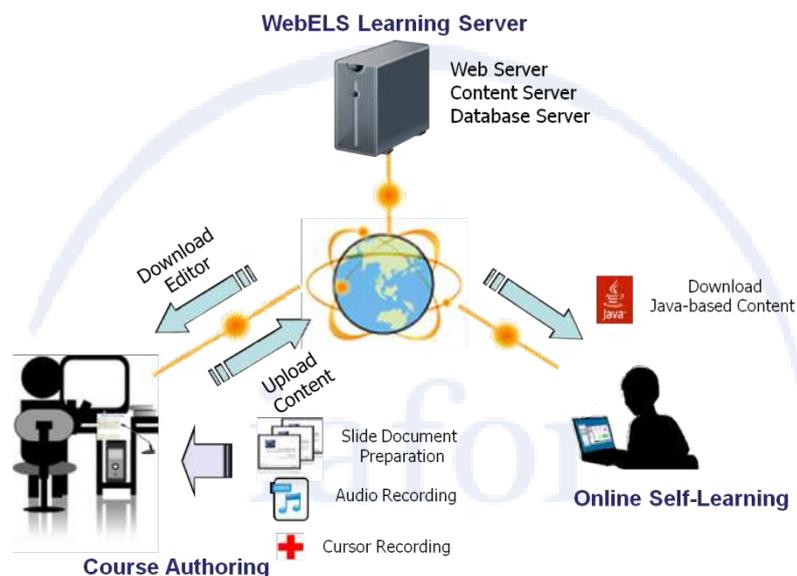


Figure 1. WebELS Learning System and the Audio-based Content in Java

WebELS Learning system is designed to support flexibility and globalization of higher education in science and technology in asynchronous mode. Lecturers can use the system to create and maintain contents to be distributed online. Learners can browse the content list and start to learn using the content by themselves. The system provides all necessary tools during e-Learning process. Tools like content authoring, content management, user management, course management, on-demand viewer and offline viewer are included in the system.

Currently, WebELS Learning system supports authoring for audio-based content in Java and video-based Flash media content shown in Figures 1 and 2, respectively. WebELS content is slide-based, which make it easier to edit after it has been created. Each slide in the presentation document (.pdf, .ppt, .pptx, .doc, .docx, .odp) are converted series of slide images (.jpg). In Java-based authoring, audio and cursor can be easily recorded in each slide. On the Flash-based authoring, slide document and video recorded from the presentation are made to synchronize to create a video-based content. In many universities and institutes, undoubtedly, there are numerous slide presentations and recorded videos aiming to be reused but are just left unpublished because there is no system that easily manage its online distribution. The learning system technology provided by WebELS can help these valuable information be distributed online.

Audio-based content are usually preferred in low-bandwidth environment than the video-based content. However, WebELS Flash-based content have adaptive video streaming qualities, such as high, medium and low-quality, depending on the network of condition of the user.



Figure 2. WebELS Learning System and the Video-based Content in Flash Media

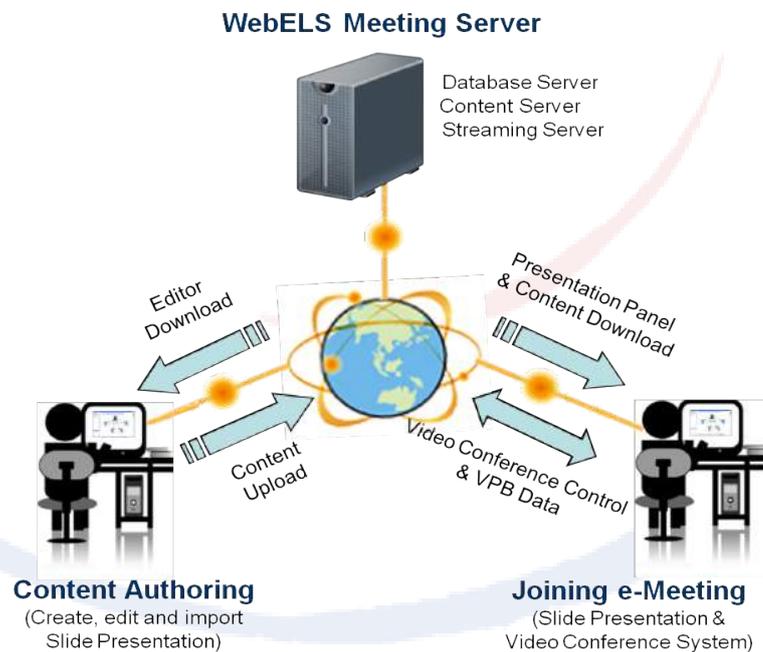


Figure 3. WebELS Meeting System

2.2.2 Synchronous e-Learning Approach

WebELS Meeting system shown in Figure 3 supports synchronous e-Learning approach. There are three servers in the server side, i.e., database server, content

server and streaming server. Database and content server are used for content and user data management, while streaming server is used for real-time audio-video communication. The system provides necessary tools for administering users and online meetings. Furthermore, the system supports easy content authoring, online slide presentation, online annotation, chat messaging and video conferencing. These features effectively demonstrate the usefulness with higher performance of the system in supporting collaborative learning for higher education.

The video conference system is based on client-server architecture, in contrast with the peer-to-peer architecture utilized by a number of similar systems. With client-server architecture, more than two users can join the video meeting at the same time. The video meeting panel is designed to be independent from the presentation panel, thereby participants logged-in on the video meeting can still open a different presentation content, while keeping the video meeting connection. There can be only one meeting administrator at one time. Administrator can assign presenter, mute all listeners, kick out a user, and manage the viewing focus to the presenter.

3. System Design and Implementation

3.1 WebELS Learning System

WebELS Learning system provides all necessary tools during e-Learning process. Tools like content authoring, content management, user management, learning progress tracing, and on-demand viewer are included in the system. Among the tools, the Flash-based content authoring and viewer, as well as the course management, are unique and worth to be described.

3.1.1 Authoring and Viewer Tools

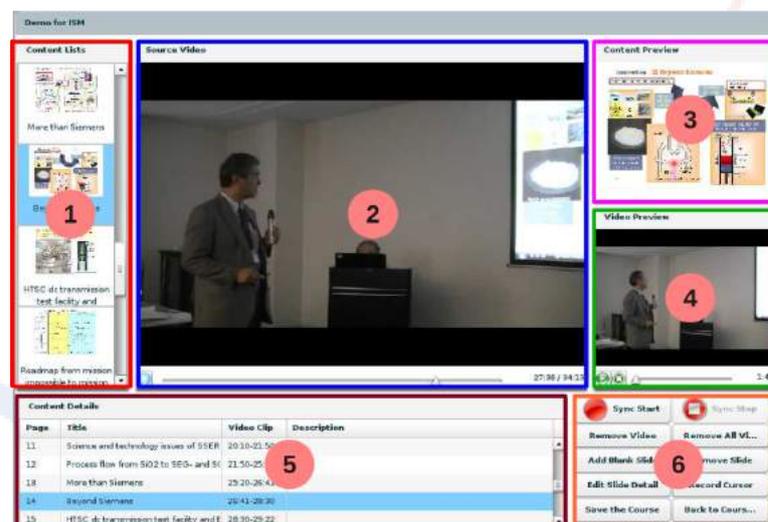


Figure 4. Design of User Interface for the Authoring Tool

Figure 4 shows the design of user interface for authoring function. It is divided into six panels, namely (1) Slide Navigator Panel for showing all slide pages and for quick slide changing, (2) Raw Video Panel for displaying raw video stream, (3) Slide

Preview Panel for previewing a selected slide, (4) Aggregated Video Preview Panel for displaying an aggregated video which is synchronized to a selected slide, (5) Content Information Panel for showing all details of synchronization slides, and (6) Editing Control Panel for managing learning content. Editing Control Panel contains synchronization tools, remove synchronized video, add blank slide, remove slide, pointer movement management and slide information editor. Slide and video synchronization is easily done in this authoring interface. Content editing is possible without any third-party software.

Figure 5 shows the viewing function interface design. Students can only view the learning content, but editing is not allowed. The interface consists of four panels, namely (1) Aggregated Video Panel for displaying the aggregated video of a current slide, (2) Slide Panel for displaying the current slide, (3) Content Information Panel for showing slide information, and (4) Control Panel for controlling online learning content. Control panel contains quality control, zoom control, toggle view control and full screen mode. Student can toggle view between video and slide panels. They can also zoom both video or slide contents to examine more closely or in greater detail. Pointer movement is visualized in this panel in case the editor synchronized it with the aggregated video. The pointer mark automatically moves while the video is playing.

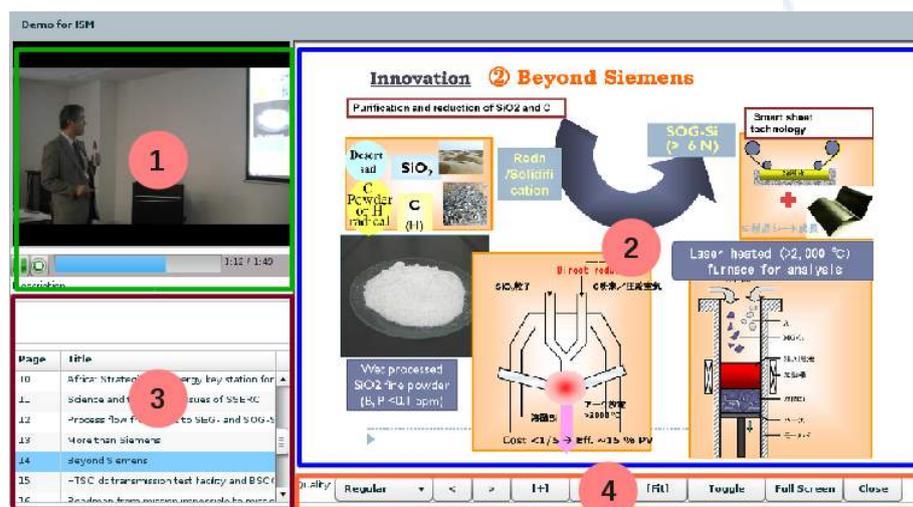


Figure 5. Design of User Interface for the Viewer

3.1.2 Course Management System

WebELS Learning system has a hierarchical user roles for managing users, course and contents as described in Table 1. The main functions of the e-Learning admin are the user management, course management, group and permission management, Category and Sub-Category Management, and the User Statistics. The admin is not expected to be an IT professional since simple processes are involved in the operation. For Faculty & Staff, only course management is allowed in order to lessen their work load and responsibilities. Students are allowed only to view online courses and download course enabled for offline viewing.

Table 1: User class and Privileges on the WebELS Learning System

User Class	Privileges
e-Learning Admin	1. User Management (Add, Edit, Delete, Change Password) 2. Course Management (Create, Edit, Delete, View, Export, Import Course and Assign Course View Permission to Students) 3. Group & Permission Management (Add and Delete Viewer Group, Assign View Permission by User, Category and Course) 4. Category and Sub-Category Management (Add, Delete) 5. User Statistics (User access, etc.)
Faculty & Staff	Course Management (Create, Edit, Delete, View, Export, Import Course and Assign Course View Permission to Students)
Student	View Online Course and Download Offline Viewer Course

3.2 WebELS Meeting System

As shown in Figure 6, WebELS Meeting system consists of online presentation and video conference system, and the combination of both allows the creation of a so-called virtual room for e-Meeting applications where participants convene via the Internet. Online presentation features synchronized slide control between the presenter and the listeners for slide changing, scrolling, zooming, cursor positioning, and playback control for video embedded on the slide. It also features online annotation that allows the presenter to write using a pen function on the slide display panel. The system has video conferencing function that provides an audio-video communication among the meeting participants.

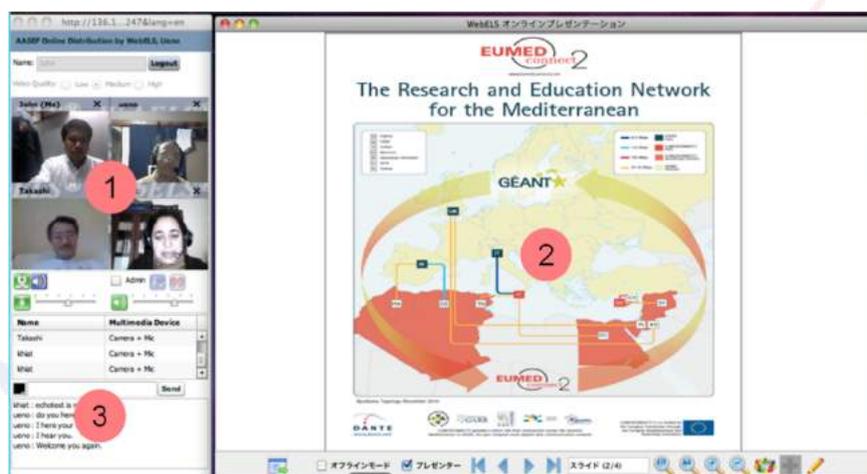


Figure 6. Example of an online meeting using WebELS Meeting consisting of an online presentation and video conference system

3.2.1 Online Slide Presentation

Online slide presentation is a technique wherein the presentation panel of one user is mirrored to one or more users by means of a shared virtual presentation board (VPB) data stored at the server (Berena, et al, 2013). The presenter of the e-Meeting updates

the VPB at the server every time there is a new slide event by sending the data onto the server. While listeners poll the server every one second in order to retrieve the updated VPB and synchronize their slide presentation.

The features of the online slide presentation are as follows:

- Slide Synchronization – A technique for real-time mirroring of slide presentation between the presenter and listener. The presentation control panel is equipped with slide control buttons (first slide, next slide, previous slide, and last slide) that enables changing of slides back and forth by the presenter, which is synchronized on the listeners' presentation display panel.
- Cursor Synchronization – A heavy red crosshair cursor is displayed as a pointer which guides the listener on which part of the slide is being presented. When the presenter moves the default cursor and clicks at a certain position on the presentation display panel, a heavy red crosshair cursor appears, and will also be displayed on the listeners' presentation display panel.
- Online Annotation – A pen-like function during the presentation for writing annotation. Writing annotation on the presentation display panel is simply done like a freehand drawing. By pressing the left-hand mouse and holding it steadily, drag the thin crosshair cursor which in turn writes your desired object. Pen color and size can be selected.
- Slide Zoom Function – Slide zooming function is necessary when text or object on the slide are not readable or visible during online presentation. It is also worth mentioning that cursor and annotation function is also possible even in zoomed-in presentation display panel. The annotated object after zooming out is scaled down equally the same as the width and height of the slide.
- Video Playback Function – Various video content formats (MOV, AVI, and MPG) can be embedded onto the slides. Video playback functions such as start, stop and pause are also made to synchronize between the presenter and the listener.

3.2.2 Video Conferencing

WebELS Meeting is equipped with a video conferencing system that provides audio-video communication among the users in a shared virtual room. With this system, effective online meeting can take place because users can discuss in a face-to-face like environment alongside with the online slide presentation.

The video conference system adopted by WebELS uses Real Time Messaging Protocol (RTMP). RTMP is a protocol used for streaming audio, video and data over the Internet between Flash player on client side and streaming server. Parameters for audio-video quality have been optimized in order for the system to adapt the users' network environment without suffering from a bad audio-video quality. These parameters include video resolution, video frame rate, video encoding quality, and audio sampling rate are used to provide three video quality settings such as low, medium and high, which can be selected in manual or automatic mode.

The system has administrator functions for keeping an orderly flow of the online meeting. Several administrator functions are mute user, mute all, set presenter, and block user. The system also has an automatic reconnection function that monitors the network connection status. When the network connection is lost, it waits for the new connection to establish, and login process automatically starts again by using the latest user environment and conference information

3.2.3 Chat Messaging

Another useful tool for a WebELS Meeting system is chat messaging. Any user in the virtual room can send a message to the server, and this message is shared among the users. There are many instances that chat messaging is very important in an online meeting. For example, before the online meeting begins, some users may have trouble setting up their own system successfully. In this case, they can send a message to the virtual room users or the presenter. During online meeting, users can also send message to the presenter which may be in a form of a question. Chat messaging system is integrated to the video conference panel.

4. Evaluation and Discussion

We used an online questionnaire in conducting the user acceptance evaluation for the system. The questionnaire has 18 questions divided into three main sections - 8 questions on the authoring function, 6 questions on the viewing function, and 4 questions on the overall system. Each section provides questions that measures the user acceptance of the proposed tool based on the three factors, namely, (1) Usefulness, (2) Ease-of-use, and (3) User satisfaction. We use the Likert scale to measure the responses from the respondents. Five ordered response levels are used, such as (1) Strongly disagree, (2) Disagree, (3) Neither agree nor disagree, (4) Agree and (5) Strongly agree, and have corresponding scores as 1, 2, 3, 4 and 5, respectively. Scores were used to determine the user acceptance of the proposed tool based on the three factors mentioned.

We sent out invitation to a group of prospective respondents via email indicating the purpose of the survey, user guide of the system, and the link to the online questionnaire. These prospective respondents consist of IT users who are familiar with computer technologies, and also non-IT users who can use the computer and Internet technologies with little assistance. A total of 73 respondents consisting of 9 instructors and 64 students in the higher education completely answered the questionnaire after using the authoring tool and learning content in actual situations.

The result in Table 2 shows that most respondents responded "Agree" to the usefulness, ease-of-use, and user satisfaction of the authoring function, viewing function, and the overall system; except for a tie in viewing function where the same number of respondents responded "Agree" and "Strongly agree" for its usefulness. The descriptive overall results simply show that most of the respondents agree to the usefulness, ease-of-use, and user satisfaction of the proposed tool. The results show that the proposed authoring and viewing tools have higher user acceptance as a proposed tool for e-Learning.

Table 2. Summary of Evaluation Results

Rating Scale	Functions	User Acceptance Factors		
		User satisfaction (%)	Usefulness (%)	Ease-of-use (%)
Strongly disagree	Authoring	0	0	0
	Viewing	0	0	0
	Overall System	0	0	0
Disagree	Authoring	2.74	1.83	1.71
	Viewing	1.37	1.37	1.37
	Overall System	2.74	2.05	1.37
Neither agree nor disagree	Authoring	26.03	22.83	27.4
	Viewing	26.94	21.92	27.4
	Overall System	27.4	28.05	30.14
Agree	Authoring	39.73	42.92	41.1
	Viewing	41.55	38.36	39.73
	Overall System	41.1	39.73	39.73
Strongly agree	Authoring	31.51	32.44	29.79
	Viewing	30.14	38.36	31.51
	Overall System	28.77	30.14	28.77

6. Summary and Future Work

This paper presented the design and implementation of Web-based e-Learning System (WebELS) for the flexibility and globalization of higher education in science and technology particularly in low bandwidth environment. WebELS supports asynchronous and synchronous e-Learning activities, such as online self-learning, online group meeting discussion, and online lecture. Through the years of development, WebELS continue to address the underlying challenges in the implementation of e-Learning in higher education. Currently, the WebELS Learning system implements a Flash-based easy-to-use authoring and viewing tools. Furthermore, the system has a content management system designed for non-IT users to assist instructors to archive their content for dissemination via the Internet. Usage in the low-bandwidth environment have been the designed goals, thus an adaptive video quality for video-based contents were implemented. For online meeting, online presentation combined with video meeting creates a virtual room for e-Meeting where participants convene via the Internet. Parameters for video streaming have been optimized to allow more users can join the meeting.

The online lecture conducted by UNESCO using WebELS last February this year has given us more useful information for refining the system. It is targeted to serve around 100 individual connection for the online lecture using the WebELS server at NII, Japan.

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The logo for iafor, consisting of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is centered within a large, faint, light blue circular graphic that is partially obscured by a red curved line on the left side of the page.

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Establishing an e-Environment that Empowers ICT within the Education System

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Abstract

Recent developments in ICT have incited an increasing attention in ICT-based blended-learning pedagogy to expand access to learning and adoptive lifelong learning amongst citizens through the use of ICT. The objective is to create an e-environment that permits ICT within the education system and backings, facilitates, and computerizes both educational and administrative activities and services accomplished at all functional levels of the education system. In this paper, the educational strategic goals have been established, followed by specific objectives with action plans to achieve the set goals. Additionally, the ICT scheme has been crafted to build a solid ICT-based, blended-learning pedagogy in schools and to make the usage of emerging technology within the education system easy and effective. Results show that the set strategies empower schools to develop the school-based, self-improvement ICT plans. More, the strategies also empower the progressive set of schools to lead others into the following phase of ICT-supported and knowledge economy-based skills.

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INTRODUCTION

Jordan has endeavored towards building a knowledge-based economy, where the generation and the use of knowledge will back expressively to an economic growing and prosperity making. Henceforth, the whole country started a real revolution with a strong-minded political will. Government institutions have permitted new tools for improved productivity and educational systems have refreshed new learning approaches in-line with new installation of advanced network connectivity and state-of-the-art tools. A development is still required to be presented to assure that educational systems are thoroughly reviewed and developed to meet the afflictions of a fast growing and evolving technology parts. This would require creation an effective educational policy that closely links the process of learning development to the formation of highly educated and better-informed labor force devolved with new values, skills, and knowledge that will permit Jordan to become viable in the worldwide ground [1,2,21].

Economic condition for constructing a successful ICT future centers in part on the success of ICT and its role in instructing the excellence of education and training. ICT also grips huge potential as a tool for reducing the costs of continuing and office education and training. However, the cost of courses passed through ICT is usually higher than that carried through conventional teaching [15,22]. Additionally, ICT holds the potential to extend access to high-quality education and training preambles and expresses our students for the knowledge-economy. The new economy places a finest on transformation, customization, new business models, and new methods of organizing work [2,3].

Schools must embed ICT-based, blended-learning pedagogy to spread students' skills and teach them new ways of managing knowledge and information. ICT can definitely help students keep up-to-date of the speedy changes in technology, the sciences, and other disciplines. It has the prospective to reform the basic beliefs of learning by making it different- rather than school-based, removing clock-hour measures in favor of performance and product measures and highlighting customized learning solutions over generic, one-size-fits-all instruction. It offers admission to just-in-time information, advice and performance support [2,5].

Despite that there is some energy by school teachers in the Jordanian schools carrying their own investigations and using trial and error to search for inventions to enhance their courses; these efforts are not coordinated with a large-scale official support and structure to move these initiatives from innovations to principles. We need to extent the culture of using technology to improve the value of education. There is a necessity to shape a system that is driven by instructional technologies that contain design and development of tools. ICT is playing an important role in universal education [16,17]. Additionally, even with the fact that the schools are distinguished in the quality of teaching and activities, their embedding ICT-based, blended-learning pedagogy is still in the early stages and we may face many challenges in this regard. We have excelled in some areas related to ICT and have many challenges to face as well. We will utilize our strengths and build on them, mitigate our weaknesses, avoid our threats and exploit our opportunities [5].

In this paper, five strategic goals have been established, including: Further develop and roll out Infrastructure Technologies across K-12 education system in Jordan with

parity and equality throughout the whole kingdom, Expand and enforce a blended learning pedagogical approach, Implement a robust integrated EMIS for school-based management, Setup and empowering the Lead School concept and Use ICT to build an effective assessment mechanism to evaluate the Knowledge Economy Skills acquired by students. These strategic goals are followed by specific objectives with action plans to achieve the set goals. The paper is intended to set up the blueprint for policy makers to embed and utilize ICT to enhance pedagogy within the educational system, which includes 3800 schools (public and private), 60000 teachers, 60 training centers and more than 1600 teacher trainers from all parts of the kingdom.

BACKGROUND AND REVIEW

Jordan is a leader in the Arab region in education reform and is a model for other countries. Significant initiatives have been and are being launched that are moving education in Jordan in the direction of a knowledge economy, initiatives for which Jordan can be rightly proud. Building on Educational Reform for Knowledge Economy (ERfKE I) and extended with ERfKE II, the Ministry of Education (MoE) is [4,10,18,20]:

- Shifting teacher professional development towards standards that can assure quality teaching and be used to purchase or develop training materials to achieve these standards.
- Growing a curriculum that moves away from “topics covered” to learning outcomes—what students should know and be able to do in each of the subjects, as well as general knowledge economy skills, such as communication, collaboration, problem solving and critical thinking skills.
- Increasing assessment that can be delivered online.
- Instituting a school development initiative that emphasizes a recurring process of evidence-based self-assessment needs analysis, action planning, implementing, and assessment.

Additionally, and in collaboration with MoE initiatives, the Jordan Education Initiative (JEI) has been engaged in innovative, ICT-based educational reform efforts since 2003. JEI is a model for integrating technology in education has proven to be effective, dynamic and adaptable, and therefore JEI has signed a memorandum of understanding with MoE and Madrasati¹ to roll out the model in 76 schools. Other initiatives in Jordan include the World Links for Development and Intel Teach which have, so far, trained 7800 in Intel to the future program and 4575 in World Links program of teachers in technology skills and ICT-based pedagogical practices [11,12,13,14].

MoE has already started with several of these presented strategies with supporting organizations, or on a small scale, like the Management Information Stream. However these early efforts are not at scale and need to be associated with overall strategies presented here to give a route to the MoE's efforts to reach a Knowledge Economy educational system [10,11]. A Knowledge Economy educational system demands significant changes across the Ministry - from the way the Ministry implements technology and educational change to the resources at its disposal to carry out this change. We describe below the high-level strategies, the actions and the operational plan for these changes [1,5,19].

¹ Translation: My School. An initiative by Her Majesty Queen Rania Al Abdullah launched in April 2008, the aim is to reach 500 public schools in urgent need of assistance across Jordan, through five years.

MISSION STATEMENT

ICT-based, blended-learning pedagogy is the use of ICT to acquire, create knowledge and move it toward knowledge economy education, and improve educational skills at times and on terms defined by each learner in an interactive, engaging, and personalized environment. It can cover a spectrum of activities from supported learning, to blended learning, to learning that is entirely online. The ICT strategies and actions presented here are based on the Knowledge Ladder presented in [1] and focus on the next five years, changes between 2012 and 2016. But these changes are designed to fit into a longer-term trajectory of change that will transform education in Jordan by 2025 and will both draw on and contribute to the country's economic transformation into a knowledge economy. The Knowledge Ladder three phases beyond Basic Education (i.e. Technology Literacy) are Knowledge Acquisition, Knowledge Deepening and Knowledge Creation. The task mission is to establish an environment that empowers ICT within the education system and supports, facilitates, and automates both educational and administrative activities and services performed at all functional levels of MoE.

STRATEGIC GOALS

A. Further develop and roll out Infrastructure Technologies across K-12 education system in Jordan with parity and equality throughout the whole kingdom

It is crucial for the MoE to strengthen its relationship with its key ICT vendors, establish strong partnerships with all vendors, and develop its own capacity to manage ICT projects and maintain resources for it to be able to successfully implement any of the related strategies or action items. Such infrastructure includes, but not limited to, hardware, software, antivirus systems, LMS, EMSS, e-content, and connectivity. It is required to conduct a comprehensive analysis, in cooperation with the Ministry of Information and Communications Technology (MoICT), the National Information Technology Center (NITC) and other relevant organizations, of ICT performance issues from the end-user perspective—computer labs and teacher computers in schools. The outcome of such analysis is to define the gaps in the existing systems and solutions, and fix them.

Objectives and Actions

1. MoE will define the basic technology model to be deployed in all schools and provide an evenhanded access to all schools in the country.
 - 1.1. Assessment of the various models of technology in education deployed in a variety of schools, and adapt and adopt a model that is affordable, sustainable and most of all effective.
 - 1.2. Conducting a baseline ICT in education comprehensive survey of all schools in Jordan to define the availability, actual use and need.
Outcome: a gap analysis that would define the needs and develop an implementation plan accordingly.
2. Further develop the e-learning resources.
 - 2.1. Assess available resources and define model for upgrading and maintaining them
 - 2.2. Build on existing partnerships with vendors of e-learning resources and enhance their level of participation, to increase the availability of these resources and improve on their quality.
Outcome: More availability of upgraded sustained state of the art resources

- 2.3. Build capacity of MoE specialists in the field of maintenance development of e-learning resources and e-learning platform.
Outcome: Better maintained resources while cutting costs of outsourced maintenance contracts.
3. Conduct a comprehensive review of the Learning Management System and EMIS to improve usage performance and access. The review will include performance issues that could be related to every step in the path between the user and the e-Learning platform, such as:
 - computer lab hardware and software,
 - network administration at the school level,
 - bandwidth available between the school and the data center,
 - the data center networking, hardware, and configuration,
 - the e-Learning platform architecture, and
 - the e-Learning platform software itself.
- 3.1. To revise contract negotiated with vendor.
Outcome: Resolve specific issues with vendor and repair relationship with vendor.
- 3.2. To produce a list of desirable characteristics in a LMS and EMIS.
Outcome: Resolve specific issues with vendor OR identify an alternative vendor and begin negotiating contract.
- 3.3. To activate and make use of a LMS available tools, such as collaborative learning, e-exams and e-assignments.
Outcome: Teachers and students are exposed to more rich and enhanced tools of instruction and learning.
4. MoE will take all measures to ensure timely and comprehensive (preventive and corrective) ICT maintenance of all its ICT resources.
 - 4.1. Build internal capacity.
 - 4.2. Deploy preventive solutions and measures.
Outcome: Computers are protected and safe from viruses.
 - 4.3. Develop partnerships to outsource certain maintenance functions.
Outcome: A regular schedule of computer maintenance is secured.
 - 4.4. To adopt a systematic ICT replenishment policy.
Outcome: Newer computers and robust technology are deployed.
5. Explore and adopt innovative ICT solutions that would enhance the teaching and learning process and align with the educational outcomes. MoE will keep an open policy towards learning and exploring with new technological solutions that would be educationally and costly effective, such as cloud computing, 3G connectivity, windows multi-seat among several others.
 - 5.1. To deploy an advanced security solution to protect the MoE ICT components and applications.
Outcome: MoE users use ICT resources with high security and data integrity.
 - 5.2. To assess and define the Infrastructure technologies requirements aligned with the Instructional design that assuring quality and equity of access.
Outcome: Alignment of the instructional design and ICT technologies is attained.
 - 5.3. To set a comprehensive plan to make use of the JEI pilot projects.

Outcome: Teachers are exposed to more efficient and updated ICT technologies.

- 5.4. To look for alternative solutions and vendors through capitalizing on pilots conducted and implemented by JEI and other organizations.

Outcome: Other ICT-based solutions and systems are ready available for MoE.

6. To manage and improve contracts and strategic partnerships with all ICT vendors and partners in Education.
 - 6.1. To review all existing ICT-related contracts and identify key areas for improvement for future contracting.
Outcome: Current ICT contracts are improved and future contracts are created based on best experience.
 - 6.2. To assign technical committees to study the contracts to identify the possible implementation problems from both MoE and Vendor sides.
Outcome: Current and future project implementation problems will be minimized.
 - 6.3. To define every relationship and its related issues and propose solution with the concerned vendors.
Outcome: Clear road map with every vendor is established.

B. Establish and enforce a blended learning pedagogical approach

Strategy 2 focuses on teacher professional development and curriculum materials that implement a “blended learning” pedagogical approach. Given that teacher professional development is moving to a standards-based approach, MoE will adopt and adapt, if necessary, the UNESCO Teacher ICT Competency Standards. The framework for these standards parallels the framework used in this strategy and, thus, will reinforce MoE ICT policy. Furthermore, the standards go beyond simple ICT skills to include competencies related pedagogy, curriculum, assessment, and school organization and management—all skills needed to implement the strategies recommended in this plan. Teacher training developed around these and other UNESCO standards would prepare all teachers to integrate ICT into their ongoing, regular instruction.

Objectives and Actions

1. To train all supervisors, principals, and teachers on the use of blended learning pedagogy.
 - 1.1. To develop a blended pedagogy training materials based on the outcomes of the ICT in education mapping study.
Outcome: Training material is developed based on the ICT mapping study.
 - 1.2. To train supervisors, principals, and teachers on blended pedagogy.
Outcome: Teachers, supervisors, and principals are using blended pedagogy regularly in classes.
 - 1.3. To employ the ICT-based training programs, create the teachers community and keep links with trainees and community.
Outcome: Teachers show competence on blended pedagogy skills.
 - 1.4. To setup advanced training programs dedicated to train trainers towards building the MoE capacity in training.
Outcome: High quality trainers’ community is created.
2. To embed blended learning materials, throughout the curriculum.

- 2.1. To update and maintain the current curriculum materials, develop or purchase additional curriculum materials incorporating ICT and blended learning, based on the ICT strategy.
Outcome: Teachers using blended pedagogy regularly in the teaching process.
- 2.2. To update and maintain the teacher guide to include a compulsory blended-learning plans and ICT-based lectures.
Outcome: Teachers using blended pedagogy and ICT-based lectures regularly in the teaching process.
- 2.3. To improve students communication skills and interactive learning methods.
Outcome: Students using interactive and cooperative learning regularly in the classes.
3. To provide every teacher with an access to a computer and high-speed Internet.
 - 3.1. To allow teachers have easy access to e-services and high-speed Internet via teacher rooms, libraries, and student classes.
Outcome: All teachers using blended pedagogy regularly in classes and exposed to wide resources and references.
 - 3.2. To supply all schools with at least one laboratory dedicated to blended learning process and the required computers for administrative staff usage. The computer-student ratio must be specified.
Outcome: All teachers using blended pedagogy regularly in classes and administrative staff use computers in schools.
 - 3.3. To connect all schools to the National Broadcasting Network (NBN) and connect each classroom to the network.
Outcome: All schools and classrooms are connected to the broadband Internet.
 - 3.4. To supply schools with different types of instructional and access technologies, such as Interactive White Boards (IWB), wireless connectivity, laptops and off-line educational resources, such as CDs/DVDs and Audio/Video streaming servers.
Outcome: Schools and classrooms experience various types of instructional and access technologies.

C. Implement a robust integrated EMIS for School-Based Management

The focus of this strategy is to have instructional, assessment, and management information systems that are integrated or at least interconnected by an e-portal that is easily accessible to those with appropriate authorization. This system will be used on a regular basis by MoE staff, directorate staff, principals, and teachers to make decisions about school improvement.

Objectives and Actions

1. To conduct thorough information needs assessment.
 - 1.1. Ministry of Planning (MoP) conduct scheduled information needs assessments to identify specifications for an integrated EMIS and assessment based on a set of performance Indices.
Outcome: Specifications for an EMIS and assessment are identified.
 - 1.2. Queen Rania Center (QRC) conduct scheduled information needs assessments to identify specifications for an instructional system.
Outcome: Specifications for an instructional system are identified.

2. To train all decision-making levels at MoE, principals and teachers in the use of EMIS as a tool for data-based decision making.
 - 2.1. MoE develop or identify a core and customized sets of training materials on the use of EMIS for decision making, which are useful for all decision-making levels.
Outcome: Required training materials on the use of EMIS for decision making developed or purchased.
 - 2.2. To train MoE staff, principals, and teachers in data-driven decision making.
Outcome: MoE staff, principals, and teachers trained data-based decision making and start using EMIS regularly to generate their own situations and perform queries decisions.
3. To assure that all decision-making levels at MoE; principals and teachers have easy access to EMIS.
 - 3.1. To ensure that computers are Internet-readily available to MoE staff, principals, and teachers.
Outcome: different levels of MoE authorities are using EMIS to inform their decision making process.
4. To enforce all MoE departments, field-directorates, and schools to submit department/school-based improvement plans, including ICT plans.
 - 4.1. To require MoE central departments, field-directorates, and schools to generate and submit their own plans requiring the use of EMIS, which describes their administrative and educational improvement goals and activities.
Outcome: submit local ICT plans and allocation of ICT resources to all MoE departments, field-directorates and schools will depend on their plans. The approach is integrated into the school development initiative of ERfKE II.

D. To setup and empower the Lead School concept

The goal of this strategy is to lay the foundation for a transition into the next phase of the trajectory that shifts to more advanced, ICT-supported project-based learning pedagogy, curriculum, and assessment, where students acquire key concepts within the subject areas and apply these to solve complex, real-world problems. With this strategy, the MoE will support Lead Schools in pioneering the uses of this approach, perhaps unique to this region.

Objectives and Actions

1. To set up a “Lead Schools” program to support school-based innovation.
 - 1.1 Develop the concept for the “Lead School” program including scope, mission and vision, application and selection process, and the level of support qualified schools will receive from MoE in order to effectively deploy the program.
Outcome: A ready program to be announced which will motivate innovative schools to improve their performance from within to qualify, and eventually to adopt neighboring schools and support their development to ring up their level of performance.
 - 1.2 MoE will develop or use existing communication portal for Lead Schools and other learning schools to enroll in and obtain valuable research materials, post projects, and communicate amongst themselves.

- Outcome:** Online learning research resources available for schools for self-development, and eventually a community of best practices is built.
2. To begin developing project-based training and materials.
 - 2.1. MoE develop or identify project-based pedagogical training materials.
Outcome: Lead Schools will engage in innovation and disseminate this to other partner schools.
 - 2.2. To train Lead Schools principals and teachers on project-based pedagogy.
Outcome: Teachers and principals in Lead Schools will be skilled in project-based pedagogy, use project-based pedagogy on a regular basis and spread this to other partner schools.
 3. To provide additional resources accompanied by an accountability system by which schools are and hold accountable for using these resources.
 - 3.1. To provide Lead Schools with additional equipment, funds, and human resources appropriate to their proposed plans.
 - 3.2. Put in place an accountability system for the usage of these resources. This can be aligned with the accountability system to be developed under component 1 of ERfKE II.
Outcome: Lead Schools will engage in innovation, spread this to other partner schools and demonstrate adequate progress in implementing their plan.
 4. To develop a monitoring and evaluation framework to document the experience of the Lead Schools program.
 - 4.1. To develop, field test and implement an evaluation mechanism.
Outcome: Lead Schools program will be regularly evaluated and improved.
- E. *Use ICT to develop an effective assessment mechanism to evaluate the Knowledge Economy Skills Acquired by Students*

The current Strategy recommends that the MoE and with the support of its external partners such as the NCHRD continue working together to measure students' knowledge economy skills and to explore ways to develop ICT-based assessments of these knowledge economy skills development of such an ICT-based assessment in the next five years would also position Jordan well for participation in international ICT-based assessments. Since Jordan regularly participates in the studies of both the Programme for International Student Assessment (PISA) and International Association for the Evaluation of Educational Achievement (IEA), development of ICT-based assessments would prepare the country well for these studies. In addition to designing an ICT based large scale national assessments similar to the NCHRD's National Assessment for Knowledge Economy (NAfKE), The MoE should also enforce the usage of ICT in classroom assessment as well.

Objectives and Actions

1. To develop and field test an ICT-based assessment of knowledge economy skills.
 - 1.1. To develop, field test and implement a national ICT-based assessment of knowledge economy skills. Of course this assumes that schools are equipped with the needed infrastructure to implement this assessment

Outcome: An ICT based large scale national assessment study is designed and ready to be used.

2. To integrate ICT as a tool in the classroom assessment.

2.1. The different directorates of MoE should work together to find ways to use ICT tools in the authentic assessment strategies currently employed by MoE.

Outcome: An ICT based national assessment tool is used within MoE.

CONCLUSION

Efforts need to be scaled and aligned with the strategies presented in this article, which are based on the Knowledge Ladder, to empower the efforts of MoE to reach a knowledge economy education system. This is accomplished through the five-year ICT strategy that is planned to build on and contribute to this base by scaling up the educational system in Jordan so that all teachers are employing ICT on a regular basis enhance their instruction, engage and encourage student learning, and evaluate progress. Accordingly, this will have an impact on all students in Jordan.

The presented paper offers school teachers with access to equipment, influential digital assets, and training in blended pedagogy; so that they have the resources and services desired to frequently use ICT in their teaching. Authorizing school teachers to use ICT on a steady basis is the most cost-effective method to influence all students. Additionally, the strategies empower schools to develop their own school-based self-improvement strategies, including ICT plans. While providing the basics to all teachers, principals, and schools, the strategies also empower a cutting-edge set of schools to lead others into the next phase of ICT-supported, project-based learning, in which students use profound thoughtful of school subjects to solve complex, real world complications and develop 21st century, knowledge economy-based skills. ICT-based assessments will be used to measure progress on these developments. Collected, these strategies will move education in Jordan in the direction of knowledge formation in support of a workable knowledge economy. It is recommended that the MoE discover a range of partnerships, including private-public partnerships that can provision the execution of this paper.

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Where in the world is Kolkata? Can international school placements make a difference to intercultural awareness?

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Abstract

In an increasingly globalised society, teachers must be prepared to work in multicultural classrooms with intercultural sensitivity. They also need to provide their students with multicultural understanding and therefore experience in another culture could be important. The understanding gained could contribute to the sustainability of social cohesiveness, firstly in a teacher's own classroom, then, conceivably, nationally. In this paper the author addresses the impact of a four week international placement in Kolkata, India, on the teaching philosophy and strategies of fourteen initial teacher education students. The pre-service teachers were asked to complete four surveys; before, during and after their placement and a last survey after another teaching placement some six months after their Indian experience. There were also assessment requirements where students had to reflect initially on what might lie ahead and later discuss aspects of what they might share and what they had learned whilst on placement by referring to 'critical incidents'. The results of the study demonstrate that the students were certainly out of their comfort zone, but that valuable learning occurred.

Keywords: International placements, cultural awareness, practicum, teacher education

1. Introduction

The term ‘global village’ (attributed to McLuhan, 1962, 1964) has entered into common parlance and, in education, has taken on new meaning as education boundaries have extended beyond the traditional classroom to encompass world-wide ‘virtual’ classrooms. The recent advent of massive open online courses (MOOCs), which span both international borders and time zones, is testament to this change in focus. These extended boundaries create an educational imperative in terms of understanding the multicultural differences that will exist within any global cohort. On a micro scale, in Australia, multiculturalism also exists within many traditional classrooms with increasing numbers of non-Anglo Australian, non-English speaking background students engaging in educational settings from early childhood to tertiary education.

Given this heterogeneous educational milieu in Australian schools, it is critical that teachers are prepared to understand the different backgrounds and to meet the individual needs of their diverse student cohorts. This requirement is recognised in the Australian Professional Standards for Teachers (Australian Institute for Teaching and School Leadership [AITSL], 2011) within a number of the standards and, most particularly, Standard 1.3 which states that teachers must be able to “demonstrate knowledge of teaching strategies that are responsive to the learning strengths and needs of students from diverse linguistic, cultural, religious and socioeconomic backgrounds” (AITSL, 2011, p. 8). Working in these classrooms requires what has been described as ‘cultural competency’ (Fitzgerald, 2000), a competency that:

is about developing the ability to identify and challenge one’s cultural assumptions, one’s values and beliefs. It is about developing ... the ability to see the world through another’s eyes or, at the very least, to recognize that others may view the world through different cultural lenses (Fitzgerald, 2000, p. 184).

However, methods as to how this is translated into pedagogical practice are still debated. The argument developed in this paper is that a major form of preparation occurs through professional experience (or practicum) placements.

Professional experience is well-documented as being a pivotal component of initial teacher education programs (Darling-Hammond, 2006; Grossman, 2010; Hastings & Page, 2006; Smith & Lev-Ari, 2005) and “the implicit value of this component of teacher education is not contested” (Taffe & Knipe, 2005, p. 423). Indeed, in Victoria, Australia, a government inquiry into teacher preparation stated that:

practicum is the most effective means of preparing pre-service teachers to teach the curriculum ..., to prepare them for assessment, reporting and administrative responsibilities, and for the human relations dimensions required for developing relationships with students, colleagues and parents (Parliament of Victoria, 2005, p. 135).

The importance of this aspect of all teacher education programs is recognised in Australia with accreditation of initial teacher education courses requiring a specified number of placement days. A pre-service teacher might achieve outstanding results in all theory units, but, without satisfactory completion of the requisite number of professional experience days, s/he cannot graduate as a teacher.

The author contends that, given the key role of professional experience placements, an international placement can be instrumental in enhancing awareness of and developing strategies to encompass multiculturalism in classrooms. It is acknowledged that this argument is not new. In 1987, Wilson posited that “cross-cultural experiential learning should be a component of every teacher education program” (p. 519). However, the changes in the educational milieu described earlier make this approach more important than ever. The understandings gained through such international experiential learning could contribute to the sustainability of social cohesiveness, firstly in a teacher’s own classroom, then, conceivably, nationally.

In this paper, the author describes a research study based on a four week school placement situated in Kolkata, India. The background to international placements at the University of New England (UNE) in New South Wales, Australia, is briefly explained, followed by an outline of the research methods. There is then a discussion of the findings in terms of the impact of this placement on the teaching philosophy and strategies of the participating pre-service teachers. The author concludes the paper with a discussion of the importance of multicultural experiences for teacher formation.

2. Background: International Placements and the UNE Context

International professional experience placements began at UNE in 1998 in Wuxi, China with the aim of broadening the international perspective of teacher education programs. More specifically, learning outcomes for the placement included that the participants would be able to:

- demonstrate an appropriate understanding of inter-cultural issues relevant to education contexts;
- communicate with teachers, other school and university personnel, students and community members associated with the placement school in an effective, culturally sensitive and professional manner;
- demonstrate appropriate cultural awareness and the capacity to develop and implement curriculum and pedagogy that is responsive and sensitive to educational contexts within an international experience.

Pre-service teachers were provided with this international opportunity as an elective unit in their initial teacher education program. Originally it was offered only to the on-campus cohort of primary teacher education students, but gradually it was also offered as a core placement to off-campus students in both primary and secondary teacher education programs. Participants in the international placement unit were responsible for funding the travel component of this opportunity themselves. The host schools provided accommodation and meals without cost. The last of these placements in China occurred in 2007. It had become increasingly difficult to find schools to accommodate the pre-service teachers and, in 2008, the bird ‘flu pandemic saw the cancellation of any international placement for that year.

In 2009 an invitation was extended to UNE from an international school, in Kolkata, India, to take a group of pre-service teachers to that school for a four week professional experience placement. The first reaction of many people was who, what or where is Kolkata? The second reaction was that here was a possible new partnership: a school asking us to take students and a university looking for another location for international placements after links

with China had dwindled. Between May and November 2009 a contract was negotiated and then signed between the school and university, pre-service teachers were alerted to the new opportunity, enrolment of fourteen participants occurred and briefing sessions, based on many emails to and from Kolkata, were held. The pre-service teachers were also split into pairs as the school that they were going to, under the leadership of an Australian principal who was hoping for pedagogical innovation, was keen for them to teach in pairs in the classrooms. The group left for Kolkata in mid-November, 2009, accompanied by one lecturer (the author).

3. The Study

3.1. Purpose

While there had been international placements at UNE for 10 years, there had only been informal evaluations of these placements with little research into the impact on the pre-service teachers and their teaching philosophy and pedagogical practices, particularly after the placement had concluded. With this in mind, the aim of this research project was twofold. Firstly, to explore the immediate benefits and challenges of engaging in an international professional experience placement on these aspects. The second aim was to examine the participants' beliefs about any longer term impacts after another placement, in Australia, at least six months later.

3.2. Cultural Awareness via the Third Space

In 1994, Bhaba described the concept of the third space where cultural differences are experienced through one set of assumptions and beliefs being set against another causing "moments of panic" as a result of a "contingent, borderline experience" (p.207) where dissonance comes to the fore. This research project uses the third space conceptual framework to underpin the analysis of the surveys and reflective writing pieces described in the next section.

3.3. Methods

In order to explore the benefits and challenges of engaging in an international professional experience placement a variety of methods were used including surveys, online forums and reflective writing. As the lecturer accompanying the pre-service teachers was also responsible for marking the reflective writing pieces, which were assessment tasks, ethics approval was gained for analysis after results were released. All pre-service teachers were given a pseudonym by another member of staff and the pseudonym/actual name correlation was not released to the author until after results had been finalised.

The first of four surveys was administered prior to going overseas and aimed to establish the pre-service teachers' attitudes to the placement, as well as what they perceived might be the benefits of the placement for their teaching. The second survey occurred mid-way through the placement and sought to ascertain any changes in attitude by the pre-service teachers. The third survey was then completed after the pre-service teachers returned to Australia and sought information about how they believed that they had been affected by the experience and whether their teaching had been or would be modified in any way. The final survey occurred after another Australian teaching experience (a minimum of six months after the international placement) and aimed to discover whether there had been any lasting changes in teaching practice. Some analysis of the survey data was conducted through SurveyMonkey, the program used for the surveys, and the rest of the analysis was done using Wordle, Leximancer and manual coding. Wordle is an online software package that produces 'word clouds' from input text, giving greater prominence to more frequently used words (see

<http://www.wordle.net/>). Leximancer is a text analysis software package that clusters text into concepts (see <https://www.leximancer.com/>).

Data was also collected from pre-service teacher postings into a pre-placement forum and by analysing their three reflective pieces of writing, again one before leaving, one mid-way through the placement, and one at the end. These reflective writing pieces were linked to what have been described as ‘critical incidents’:

... distinct occurrences or events which involve two or more people; they are neither inherently negative nor positive, they are merely distinct occurrences or events which require some attention, action or explanation; they are situations for which there is a need to attach meaning (Fitzgerald, 2000, p. 190).

The pre-service teachers were asked to write about their expectations of the placement for their first reflective writing piece and the second asked them to comment on some of the challenges. In terms of the research project, the third reflective writing piece was the most important. This asked students to:

analyse how you have developed as a teacher, both in terms of teaching ability and also in terms of cultural sensitivity. Identify any changes in your personal and professional understandings that arise through this analysis.

3.4. The Participants

A group of fourteen pre-service teachers had enrolled in the international placement unit and they agreed to take part in the research project, thereby giving consent to use not only the specific research surveys data, but also to use their forum postings and assessment tasks. All of the participants were primary pre-service teachers and only one of these was not studying in face-to-face mode. There were three males and eleven females and only the female off-campus pre-service teacher and one female on-campus pre-service teacher had not entered the teacher education program straight from school, but rather had entered through mature-age entry. All participants had completed their first three core placements, thus having some teaching experience.

In preparing the pre-service teachers for their placement through regular meetings to discuss expectations and to answer concerns it was discovered that of the fifteen people heading to Kolkata (including the author) only one had ever been to India. Of more significance, two pre-service teachers had never left the northern areas of New South Wales or been on a plane before and one other had never been further than Sydney (the New South Wales state capital), a distance of 600 kilometres from the university. Another four pre-service teachers had never been outside Australia. This meant, that 50% of the participants had had only limited exposure to international cultures and had certainly not been immersed in such a culture as would occur during the placement.

4. Discussion

Prior to leaving Australia, the participants were asked in the initial survey about their emotions regarding the placement. Their feelings are evident in Figure 1, a Wordle created from the list of emotions provided by the pre-service teachers.

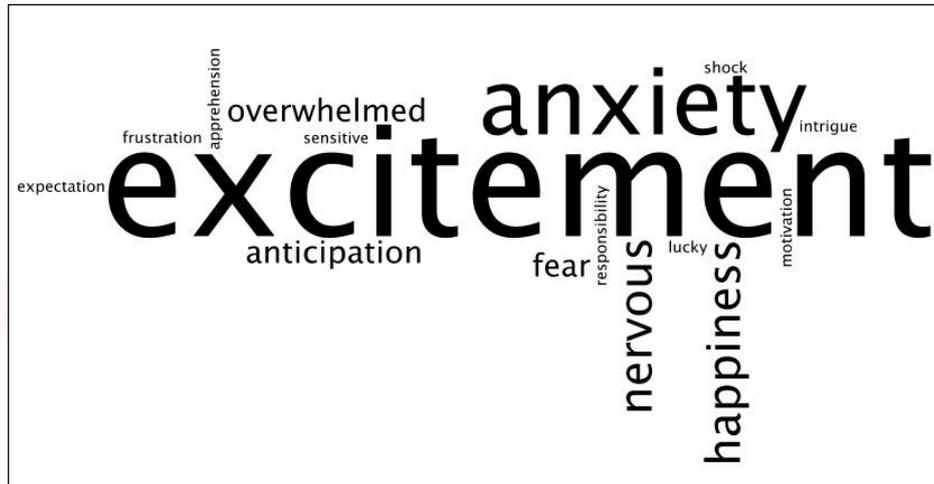


Figure 1: Pre-International Placement Emotions

As might be expected, the pre-service teachers were excited with a strong element of anxiety as well. One participant expressed the excitement, stating:

I am not only embarking on the idea of travelling overseas but I am also doing it in using my passion to teach children. Learning about new ways of living and learning will be a huge part in developing the teacher I will become (Kangaroo paw).

Another participant also demonstrated her excitement, but added the reason for her anxiety:

To be able to go overseas to a completely foreign place will push me not only as a future teacher but also as a person. I am so excited, but scared. ... This trip will be a complete culture shock for me as I have led a very sheltered life and to be perfectly honest I hope I don't give out racist vibes or offend people when we're over there (Jacaranda).

This participant also demonstrated that she had already started to consider the ways in which she might need to be sensitive to another culture and to consider her words and actions more carefully than perhaps she was used to. This awareness was communicated by many of the participants. One of the other participants, who had not been out of Australia, also referred to this awareness, but did so in words that demonstrated her anxiety was overwhelming her excitement;

This being my first time leaving the country there are many reasons for my anxiety. I am generally a very friendly and out there kind of girl and I seem to have been born with a case of foot in mouth so I am afraid that certain things I do and say might cause offence to some or may get me in trouble in some way or another (Acacia).

It is interesting to note that even before experiencing the placement in an international setting, some of the students were already beginning to develop awareness of what immigrants to Australia might feel and how this might affect teaching these children in their classrooms in the future. Bougainvillea, one of the male participants, wrote in his first reflective piece:

An experience like this gives me an insight into how a student feels when they come to Australia and know nothing about the customs, cultures and religions of the area. It would be incredibly hard to fit into a new place and even more so if you don't understand the language spoken around you. As a professional I feel that going on this practicum I will grow in confidence and my pedagogy will benefit from this markedly.

There is evidence here that international placements can have an effect on teaching philosophy even before the placement itself begins.

By mid-way in the placement the pre-service teachers were beginning to feel some strain as reflected in their emotions:



Figure 2: During International Placement Emotions

By this stage, the participants were feeling the strain of working from 8.00am to 6.00pm Monday to Friday and presenting in-service sessions to their supervising teachers and other school staff on Saturday mornings. They also found living in dormitories, in close contact with each other constantly, rather fatiguing. They were also finding themselves frustrated on a range of levels as individuals met with challenges in communication.

Several participants made survey comments indicating that they were not fully prepared for the difference in teaching approaches and also indicating that they had entered the placement feeling that they would show the teachers another method of teaching that would be willingly embraced. This was most clearly shown by Melaleuca who, in response to what was felt to be a major problem, stated that it was "getting the Indian teachers to accept us into their classrooms and take on board what we were saying and implementing". This may have developed from the principal's request to use collaborative learning in the classrooms, but also reflected their own views of the superiority of Australian education. Boronia commented that "I realise how lucky I am to be one day teaching in a country which values (this)." Some of the participants could certainly be described as demonstrating a 'colonist' approach in the early days of their placement.

While it appeared from survey responses that the pre-service teachers were not learning from their supervising teachers other than being sure they would not teach in the same way, their

reflective writing presented a different view. Waratah, in particular, made a more balanced comment, remarking that:

Teaching in a classroom with a teacher from another culture allowed me to learn so much more. The differences in the way we taught allowed me to gain a better understanding and a clearer idea of the strengths and weaknesses in my own teaching style.

The survey responses, done in free time between lessons, perhaps are knee-jerk style responses in the busyness of the day while the reflective writing, completed over time, presented a more considered approach to their experiences.

While the earlier surveys and first reflective pieces provided evidence that the participants were gaining new awareness from their experiences of the placement, the final reflective task and the last two surveys were more indicative of the impact of the placement. In both the third and fourth survey, the pre-service teachers were asked to rate the impact of the experience on their teaching philosophy and strategies. Immediately after the placement, nine participants responded to the survey. The final survey was completed more than six months after the pre-service teachers returned to Australia and after they had completed another placement. Most of these placements were completed in regional and rural New South Wales. Twelve of the fourteen participants responded to this final survey. The responses to these two surveys are shown comparatively in Figures 3 and 4.

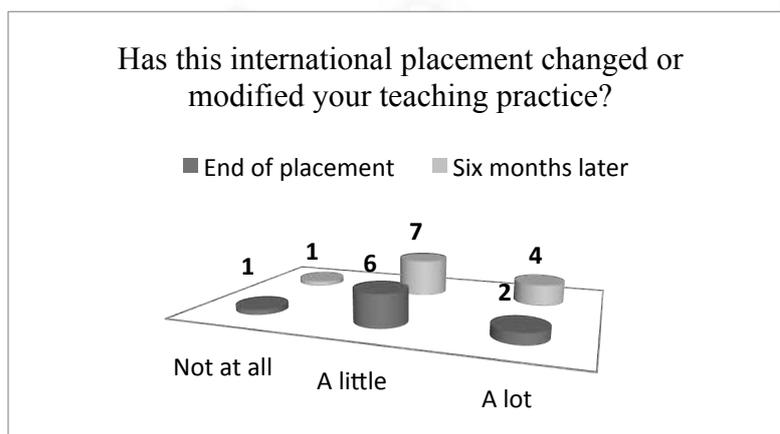


Figure 3: Survey 3 – Impact on Teaching Philosophy

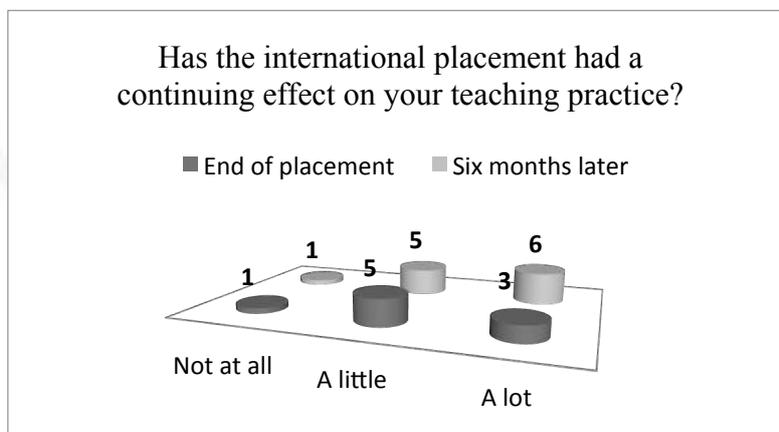


Figure 4: Survey 3 – Impact on Teaching Practice

Generally the pre-service teachers reported experiencing some impact from the experience. Interestingly, in survey 3, the 'not at all' response came from the older, off-campus student who was well-travelled and who also was most critical in her reflections about the other participants. Many of the other participants recognised the impact more positively and made comments such as:

Learning to adapt and to become more culturally sensitive. Also learning how to cater for the needs of the culturally diverse students. Also learning not to place assumptions on students because of their religious beliefs or cultural values and learning not to stereotype them (Banksia),

and

Working with students from different cultural backgrounds, learning of these and being able to incorporate these into my teaching practices and my own personal knowledge and personal philosophy (Callistemon).

In the survey 4 results, an interesting change in response that should be mentioned is that the participant who had rated both questions as 'not at all' in survey 3 did not respond to survey 4 and the 'not at all' responses in survey 4 (one in each question) came from two different participants, both of whom had responded 'a little' in survey 3.

Teasing out the responses shown in the surveys was difficult as many of the respondents did not avail themselves of the questions requesting elucidation of the rating. However, there were a range of comments which cast light on how the international experience has had an impact. Callistemon stated immediately after the placement that:

This practicum has definitely changed my teaching philosophies. I feel that from this experience I have become more confident and it has strengthened my core beliefs and values in teaching as a profession. I definitely do believe that every child has a right to learn and, by saying that, we as teachers need to facilitate this learning and cater to the best for these children's individual needs. From the classrooms in India I have learnt that even though children differ in background, contexts and cultural and religious values, children are still children and have the right to learn individually. This professional experience may not have changed my philosophy radically, but rather built upon and strengthened it.

She went on to state after another placement that "now I have a deeper understanding of how hard it is for students to fit into a culture that is not the same as the culture they come from". This latter sentiment was echoed by Lillypilly in her recognition that:

I have now got more empathy towards students who are a minority within a classroom: similar to what it was like for myself in India.

Lillypilly was developing cultural competency, "the ability to see the world through another's eyes" (Fitzgerald, 2000, p. 184).

There were also many comments about teaching practice and the responses tended to show that these were perhaps more impacted than teaching philosophies. Indicative participant comments were:

I am more aware of the need to plan and provide for the diversity of my classroom (Kangaroo paw);

and

Because the teaching practices are so different from the way we are taught to teach in Australia it makes you stop and reflect on 'why' we do things the way we do, and how this impacts on the students and their learning. It also gets you to look at 'how' the students are learning and how much they enjoy their schooling in Australia compared with India, which in turn influences their learning outcomes (Boronia).

While Boronia commented on teaching practice having been influenced by the placement it is interesting to note that there is still an element of 'Australian is better than Indian' in the comment.

The qualitative comments from the surveys were also supported by the more deeply reflective comments in the writing pieces submitted for assessment. Many of the pre-service teachers demonstrated that they had been impacted by their experience, some on a deep level. One of the most telling pieces of writing came from Acacia, who wrote:

India has had a huge impact on me as a whole: my thoughts, beliefs and priorities have definitely been shaped by the wonderful people I had the pleasure of meeting and spending time with whilst in India. ... These people have helped me to understand and adapt to change and to never judge something or someone until you have tried to put yourself in their shoes and understand the reasons behind their actions. ... During my short stay I believe my cultural sensitivity has been changed and formed, and that these people are responsible for my differing views. I am ashamed to say that before venturing on this journey I was quite a racist person towards specific cultural groups. ... As a primary teacher, I now see the importance of teaching values education and concepts such as acceptance and empathy.

5. Conclusion

International pre-service teacher placements are not uncommon. However, they are also expensive and, in Australia, will become more limited as accreditation requirements force more days of placement in Australian schools rather than other settings (only 10% can now be in a non-Australian setting). This project demonstrated that there are positive effects on the philosophy and pedagogical practices of participating pre-service teachers, effects that are profound for some. It is unfortunate that it has not been possible to follow-up these participants more recently, after they have taught in schools for two or more years. Given the opportunity, the author would build this into a future, more longitudinal project. Other studies (Willard-Holt, 2001; Maynes, Allison & Julien-Schultz, 2012) have shown that international placements can have continuing impact.

As multiculturalism continues to rise in Australia, it is clear that the teachers of the future need to be prepared to teach in culturally sensitive ways as well as have the necessary skills to teach cultural awareness to the children in their classrooms. Through the experience of being in the third space, these sensitivities and skills can be fostered. Teacher educators now need to explore how to build this experience more cohesively into their courses and governments to consider funding such experiences.

Acknowledgement:

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The logo for the International Association for Frontiers in Education Research (iafor) is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, serif font. The text is enclosed within a large, faint, light blue circular arc that is partially visible, suggesting a larger circular design.

Development of Scales on the Effects of Gaming in Cyber Cafés in Manila

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Abstract

This study attempted to develop valid and reliable scales towards the effects of gaming in cyber cafés in Manila. In order to develop the scales, an initial draft of the questionnaire with twenty-seven items was distributed in the fifteen districts of Manila. A total of four hundred eighteen (418) survey forms were retrieved. Factor analysis was used to determine the dimensions of the questions while Cronbach's alpha analysis was utilized to determine the reliability of the questions on each construct. Any items with factor loadings less than 0.50 and Cronbach's alpha values of less than 0.70 were discarded. The final scales had twenty (20) questions. It was revealed that the effects of cyber café gaming could be investigated into the following dimensions – Responsibilities, Health, Relaxation, and Socialization. All questions under each construct were found highly valid and highly reliable. It is expected that various studies could be derived from the use of the developed scales. Limitations of the study and recommendations to improve the scales were also presented.

Keywords - *cyber café; digital divide; effects of gaming; internet café; Manila; online games; scales*

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I. Introduction

The United Nations (United Nations' Asia-Pacific Development Information Programme 2002), De Guzman and Fabian (2009), and Rodrigo (2005) have shown the inequality in the access of ICT (i.e., digital divide) in the Philippines. According to the United Nations' study in 2002 (United Nations' Asia-Pacific Development Information Programme 2002), the Philippines has personal computer penetration of 1.9 for every 100 persons and Internet penetration of 6 for every 100 persons. The computer ownership did not improve in 2005. Rodrigo (2005) reported that there is 1 is to 55 computer-student ratio in secondary schools in Metro Manila.

De Guzman and Fabian (2009) showed that the price of the technology is the major concern of the students and most of the students cannot afford ICT products such as video games, cellular phones, MP3 players, and laptops. In order to address these situations, students share ICT products with their classmates or avail themselves of the services of cyber cafes in their locality.

Alam et al. (2009) defined cyber café as “a shop, café or place which is open to public, where anyone can just hire a computer for a certain period of time with a certain amount of fee”. Similarly, Haseloff (2005) defined cyber cafés as “for-profit facilities, open to the general public to access the Internet, other network facilities and/or a variety of information technology tools on a temporary contract basis (pay per use) without the necessity for the users to own hardware or software themselves”. These are open to the general public who can afford to pay for the services and generally there are no restrictions with respect to age, gender, religion, ethnicity, or income (Haseloff 2005). Cyber café is interchangeably called internet café, internet shop, or computer shop in the Philippines.

It is argued that cyber cafés could help bridge the digital divide since they may provide better equipment or faster connections for different and more advanced uses (Haseloff 2005), and offer minimal cost alternative to personal computer ownership, Internet access and other multiple financial barriers (Adomi et al. 2003). Because of these advantages, it became the most common Internet access model (Haseloff 2005) in developing countries (Furuholt and Kristiansen 2007b) either in urban or rural settings (Adomi et al. 2003).

It can also be noted that cyber cafés are open to the public and offer gaming and Internet services to the users which are unmonitored and controlled. Somoni et al. (2010) showed that customers repeatedly returned to the cyber cafés because of computer games. The gaming services provided by cyber cafés posed threats to tradition and cultural values of the users (Alam et al. 2009). In China, for example, some cyber cafes were forced to close by the Chinese government because young Chinese people were caught due to illegal gambling in the internet, viewing of pornography, and violent gaming (Alam et al. 2009). Ishii and Wu (2006) said that cyber café also offers criminal opportunities that “can attract students who wish to avoid school, adolescents who wish to engage in on-line gambling and pornography, gangsters who wish to sell drugs, hackers who wish to spread back-door Trojan horses or viruses, and even young females who wish to trade their bodies”.

It was also revealed that some spend more time in cyber cafés than they do in school or on school-related activities (Ko et al. 2005). Numerous articles have shown that excessive network and online gaming have negative effects on the users. These are losing significant relationships, jobs, and education or career opportunities (Allison et

al. 2006); have negative emotions and loss of control (Grüsser et al. 2007); sacrificed sleep, work and/or education, socializing with friends, socializing with partner, and family time (Griffiths 2004); missing other things (e.g., classes, meals or appointments), losing sleep, guilt at “wasting time”, and creating conflict with others (Wood et al. 2007); time distortion (Rau et al. 2006); and has negative effects on life satisfaction, low school grades, deterioration in interpersonal relationships, and non-confrontation of problems (Wang et al 2008).

The threat of excessive gaming is also present in the Philippines as Hermosa (2010) said that the Philippines ranked first as the top market in Asia in online gaming. De Guzman and Fabian (2009) already noted the effects of excessive gaming on Filipino youth. They found out that excessive use of computers has negative effects on students such as disturbance in study periods, quality time not dedicated to family, laziness to do household chores, stubbornness, escapism from house work, missing of classes, and failing to submit assignments on time.

On the contrary, different studies showed that gaming have positive effects. For example, Cole and Griffiths (2007) reported from their sample of 912 MMORPG players from 45 countries that MMORPGs were found to be a highly socially interactive environment which provided an opportunity to create strong friendships and emotional relationships. They also reported that 74.7% of gamers made friends with other gamers. Gamers also tend to meet with other gamers through guild meet ups, small group meetings, or conventions. Cole and Griffiths (2007) also reported that 81% of their respondents enjoyed playing games with their real-life friends (friends who were not met online) and family. This is also similar to the findings of Utz (2000) and Yee (2006b).

Cole and Griffiths (2012) also showed that gaming allowed players to express themselves in ways that they may not feel comfortable doing in real life due to their appearance, gender, sexuality, and/or age. Suler (2004) commented that these behaviors were called dissociative anonymity (“you don’t know me”) and invisibility (“you can’t see me”). These behaviors cause people to self-disclose sensitive issues to someone online more than they ordinarily would in a real life.

Gaming became the favorite past time of the youth. This is explained by Wan and Chiou (2006). According to them, games served as media of entertainment, leisure, and relaxation. The study of Yee (2006a) also supported this finding.

Given these situations, however, no studies have yet been conducted to determine the effects of cyber café gaming. This is partially attributed to the lack of valid and reliable scales that could determine the effects of gaming in a public venue such as cyber cafés. Thus, the objective of the study is to develop highly valid and reliable scales. It is expected that with the developed scales, local and foreign researchers could further investigate the effects of cyber café gaming.

II. Methodology

A. Research Design, Locale, and Subjects

The study employed a descriptive design in which a descriptive-survey was conducted using the questionnaire as the research instrument. Based on the classification of the Globalization and World Cities (GaWC) Research Network of the City of Manila as a

Beta+ global city (a ranking of a city based on its progressive economic activities) (Globalization and World Cities 2008), the City of Manila was chosen as the research locale of the study.

Computer games can be subdivided into two categories. The first category is the personal computer (PC) games that involve one or more players (Lo 2005). Net games or network games, which are further subdivided into web games, network games, and online games, are the second category of gaming (Lo 2005). This type of gaming allows multiple players to use their PCs to interact via local area networks or the Internet (Lo 2005). There are certain games that can be played online with hundreds or thousands of people together at the same time in the same game (Rijswijk 2008).

Games and the internet are closely related (Lee et al. 2007). In this study, the term *Internet* is used as means to play online games. Thus, both PC and network gamers in cyber cafés in Manila were the subjects of the study.

B. Sampling Design

Purposive sampling was used to choose the respondents since respondents are all gamers. Nevertheless, respondents regardless of age, sex, religious affiliation, etc. answered the questionnaire. As to the selection of cyber cafes, cyber cafes were selected through random walk method (Haseloff 2005) that covered the entire city of Manila. Whenever the researchers saw a cyber café, survey forms were distributed in that café. If more than one cafés were found in the same street, the researchers chose the cyber café alternately.

C. Statistical Treatment of Data

The initial draft of the questionnaire was composed of twenty-seven (27) questions. It was subjected to validity and reliability tests. Factor analysis was used to determine the dimensions of the effects of cyber café gaming. A question with a factor loading of less than 0.50 was deemed unfit and was discarded. This factor loading was a very significant factor loading (Abdullah and E. Zakaria 2011), (Liman et al. 2011), (Maleki et al. 2012). This was selected to achieve a more valid constructs. It can also be noted that the factor loading utilized in this study was higher than the factor loadings utilized by Kahveci (2010), Ozturk (2011), and Ramaswami and Babo (2012). They used a factor loading of 0.40.

Meanwhile, Cronbach's alpha (α) analysis was utilized to determine the reliability of each question on each construct. An item with a Cronbach's α of less than the threshold value of 0.70 was also discarded. This Cronbach's α was the most commonly used acceptability threshold of 0.70 for reliability analysis (Ozturk 2011) and above the 0.60 minimum value (Nunally, 1967 cited in Asante (2012), Ozturk (2011)).

D. Procedure

The total population of Manila served as the population of the study. According to National Statistics Office census of 2007 (National Statistics Office 2008), the population of Manila was 1,660,714. Using Sloven's formula, a sample size of 400 was computed. To give equal chances to be included in the sample, the minimum sample size was divided equally based on the population of each district of Manila. However, no survey forms were distributed to Port Area district since no cyber cafés were found in the vicinity. The minimum, distributed, and retrieved survey forms are

shown in Table 1. Four hundred eighteen forms were retrieved and these were all used in the study.

Table I. Survey Forms Distributed and Retrieved

In order to develop the scales, the following steps were conducted.

1. Draft the initial questions.
2. Determine the dimensions of the constructs.
 - a. Discard questions with factor loadings less than 0.50.
 - b. Determine the number of factors to be retained.
3. Determine the reliability of the questions.
 - a. Discard questions with Cronbach's alpha values less than 0.70.
 - b. Repeat Step 3 until all questions are at least 0.70.
4. Construct the final scales.

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III. Results and Discussion

A. Profile of the Respondents

The respondents were all gamers in cyber cafés in Manila. Statistical treatment of data reveals that 81.6% of gamers live in Manila while 18.4% of gamers are non-Manila settlers. Furthermore, most of the respondents were students (76.3%), pursuing or attained a college degree (61.5%), male (77.3%), belonged to the age group 19 and below (75.8%), young (mean age = 17.4), and belonged to middle-income class (64%).

District	Population	Minimum	No. of forms distributed
Binondo	12,100	3	3
Ermita	6,205	2	2
Intramuros	5,015	2	2
Malate	78,132	19	19
Paco	69,300	17	17
Pandacan	76,134	19	19
Quiapo	23,138	6	10
Sampaloc	255,613	63	67
San Andres Bukid	116,585	29	29
San Miguel	16,115	4	5
San Nicolas	43,225	11	11
Santa Ana	62,184	15	17
Santa Cruz	118,779	29	29
Santa Mesa	98,901	25	29
Tondo	630,604	156	159
TOTAL	1,612,030	400	418

B. Development of the Scales

Step 1. Draft the initial questions.

The initial draft of the questions is shown in Table 2. The initial draft of the questionnaire was distributed to the fifteen (15) districts of Manila. The initial draft of the questionnaire contains twenty-seven (27) questions. Respondents answered the questions in a Likert-scale type (1 – Strongly disagree, 2 – Disagree, 3 – Moderately agree, 4 – Agree, 5 – Strongly agree).

Table II. Initial Draft of the Scales

<i>When playing games in a computer shop, have you experienced the following?</i>
1. I got lower grades.
2. I gained new friends.
3. I lacked sleep.
4. I learned how to mingle with people.

5. I cannot do my assigned household chores.
6. I could not focus on my studies.
7. I could not study.
8. I got lazy on my studies.
9. I got lazy in doing my household chores.
10. I got scolded by my parents.
11. I got no time to spend with my parents.
12. I missed my classes.
13. I got failing grades.
14. I failed to submit my assignments.
15. I got no time to mingle with my "offline" friends.
16. I became stubborn.
17. I lacked time to talk to my loved ones.
18. I skipped meals.
19. I hold back to urinate.
20. My hands are aching.
21. My head is aching.
22. I had dryness of eyes.
23. I spent all of my allowance.
24. I felt time passed by too fast.
25. I feel relax whenever I play computer games.
26. My outdoors activities (e.g., strolling and picnicking) were diminished.
27. My physical activities (e.g., exercise or physical games) were diminished.

Four hundred eighteen (418) forms (which exceeded the minimum sample size) were retrieved. These were all used in the analysis. The next step was carried out after encoding the data.

Step 2. Determine the dimensions of the constructs.

Table 3 shows the results of factor analysis. Factor analysis revealed that the questionnaire had four dimensions (eigenvalues of at least 1.00). Hence, effects of cyber café gaming could be investigated through four constructs. The effects of cyber café gaming could be investigated in terms of Responsibility issues (eigenvalue = 12.259). This is found to be consistent with the studies of De Guzman and Fabian (2009), Young (1996), Griffiths et al. (2004), and Wang et al. (2008). Also, it could also be investigated in terms of Health effects (eigenvalue = 2.192) (similar to the studies of Young (1996) and Wood et al. (2007)). The third dimension of the questionnaire is called Relaxation (eigenvalue = 1.449). This conforms to the findings of Wan and Chiou (2006), and Yee (2006b).

Table III. Dimensions of the Questionnaire

Dimensions	Factor Loading	Eigenvalue
Responsibilities		
I got lower grades.	0.705	12.259
I cannot do my assigned household chores.	0.628	
I cannot study.	0.781	

I got lazy with my studies.	0.822	
I got lazy in doing my household chores.	0.773	
I got scolded by my parents.	0.606	
I missed my classes.	0.651	
I got failing grades.	0.752	
I failed to submit my assignments.	0.757	
I cannot focus on my studies.	0.652	
Health		
I skipped meals.	0.646	2.192
I hold back to urinate.	0.763	
My hands are aching.	0.741	
I had dryness of eyes.	0.711	
My head is aching.	0.599	
Relaxation		
I feel relax whenever I play computer games.	0.619	1.449
My outdoor activities like strolling and picnicking are diminished.	0.750	
My physical activities like exercise or physical games (basketball, volleyball, badminton, etc.) are diminished.	0.694	
Socialization		
I gained new friends.	0.841	1.003
I learned to mingle with people.	0.852	
% cumulative of variance explained = 62.6% Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy = 0.949 Bartlett's Test of Sphericity $\chi^2 = 7,209.964$ df = 351 Sig. = 0.000		

Meanwhile, the Socialization skills (eigenvalue = 1.003) of cyber café gamers could also be investigated. This agrees with the findings of Cole and Griffiths (2006), Yee (2006b), and Utz (200). Table 3 also reveals that all factor loadings under each construct exceeded the threshold value of 0.50. This reveals that all constructs were highly valid. Questions 3, 11, 15, 16, 17, 23, and 24 were deleted and twenty (20) questions were retained (See Table 2.).

Table 3 also shows that KMO Measure of Sampling Adequacy was 0.949. According to George and Mallery (2009), this value is “marvelous”. In other words, the sample size used in the study was highly appropriate; therefore, factor analysis could be done in the data. Moreover, the Barlett’s Test of Sphericity ($\chi^2 = 7,209.964$, $df = 351$, Sig. < 0.01) revealed that the constructs of the developed scales did not produce an identity matrix. This means that each question under each construct does not correlate highly with one another. In short, each question contributes on explaining the dimensions of the questionnaire.

The percentage of cumulative of variance of 62.6% suggests that the scales could capture 63% of the effects of cyber café gaming. It implies that the developed scales could be still improved by inserting more questions in the scales.

Step 3. Determine the reliability of the questions.

Cronbach's alpha (α) analysis was employed in the twenty (20) retained questions. It was revealed that Responsibilities ($\alpha = 0.930$), Health ($\alpha = 0.872$), Relaxation ($\alpha = 0.752$), and Socialization ($\alpha = 0.787$) were all reliable during the first run of Cronbach's alpha analysis. Thus, all questions were retained. Hence, the final scales were composed of twenty questions.

Table IV. Reliability of the Constructs

Construct	Number of Questions	Cronbach's alpha
Responsibilities	10	0.930
Health	5	0.872
Relaxation	3	0.752
Socialization	2	0.787
Total Number of Questions	20	-

Step 4. Develop the final scales.

After subjecting the initial draft in series of factorial and Cronbach's α analyses, the final scales were developed. From the 27 original questions, 20 questions were retained. Table 5 shows the final scales, the factor loadings of the constructs, and the Cronbach's α values.

Table V. The Developed Scales on the Effects of Gaming in Cyber Cafés

Questions	Factor loadings
Responsibilities – $\alpha = 0.930$	
I got lower grades.	0.705
I cannot do my assigned household chores.	0.628
I cannot study.	0.781
I got lazy with my studies.	0.822
I got lazy in doing my household chores.	0.773
I got scolded by my parents.	0.606

I missed my classes.	0.651
I got failing grades.	0.752
I failed to submit my assignments.	0.757
I cannot focus on my studies.	0.652
Health – $\alpha = 0.872$	
I skipped meals.	0.646
I hold back to urinate.	0.763
My hands are aching.	0.741
I had dryness of eyes.	0.711
My head is aching.	0.599
Relaxation – $\alpha = 0.752$	
I feel relax whenever I play computer games.	0.619
My outdoor activities like strolling and picnicking are diminished.	0.750
My physical activities like exercise or physical games (basketball, volleyball, badminton, etc.) are diminished.	0.694
Socialization – $\alpha = 0.787$	
I gained new friends.	0.841
I learned to mingle with people.	0.852

IV. Conclusions, Limitations, and Recommendations

It is found out that the effects of gaming in a public venue could be investigated in four dimensions. These were on responsibilities, health, relaxation, and socialization of the gamers. The scales were found to be highly valid and reliable. The developed scales could capture most of the dimensions of effects of cyber café gaming. Hence, the purpose of the study to develop valid and reliable scales that would measure the effects of cyber café gaming was achieved. Thus, it is suggested that the developed scales be utilized in order to determine the effects of cyber café gaming.

This was the first attempt to develop scales on the effects of cyber café gaming. Though the scales had high percentage of cumulative variance, the scales could still be improved. More questions could be added to achieve higher explanatory power of the questionnaire. Furthermore, the study was only limited to one geographical location due to budgetary constraints. Thus, the results of the scales may only be true to Manila. It is recommended that future studies could cover wider geographical location (e.g., metropolitan, regional/state, national).

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*Gender Impact on the information environment of open and distance learners (ODL)
in Botswana*

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Abstract

Issues on gender have been the focal point of educational discourse over several years. Gender disparity in education and the need to address the imbalances have generated a lot of publicity among scholars. Open and Distance learning is known to have the capacity to take knowledge and training to the marginalized, isolated, underprivileged and the unreachable and consequently bridge disparity gap and redress imbalances. The study hints at the tenacity of distance learning and technology for gender mainstreaming. The study objectives aimed at identifying the information needs of distance learners in Botswana, determining how the information needs of distance learners are met, exploring the information resources and services available to distance learners in Botswana and identifying the challenges they faced. Four distance teaching institutions involved in the study were the University of Botswana (UB), the University of Derby (UBD), University of South Africa (UNISA), and the Management College of Southern Africa (MANCOSA). The study adopted both qualitative and quantitative research design and a survey method. The empirical element of the study was conducted via questionnaire, with 20% sample size randomly selected from two institutions having 500 or more students and census method applied to the other two, with 100 or fewer students in Botswana. Using IBM-SPSS programme, cross tabulations and chi-square, non-parametric statistical significance tests were developed to test the relationship of the gender grouping. Results revealed several gender differences in a number of areas for the attention of respective institutions of study to mainstream. Some recommendations were made.

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Background Information

Assié-Lumumba (2006) perceives gender inequality in higher education as a reflection of broader societal structural inequality. Jung and Fukuda (2013) observe that in Asia, the gender disparity is one of the serious issues in education. As if to address the seriousness of disparity in education, Jung and Fukuda affirm that distance education has expanded the opportunity for the under privileged or marginalized people - women and girls in particular - to access education. Quoting UNICEF (2009), the authors note that although a steady progress has been made in achieving some gender parity regarding secondary enrolment ratios, the situation is still far from satisfaction in Asia, and that while female enrolment in higher education has increased globally, it is not the case in most parts of Asia.

Highlighting some experiences and strategies on women and ICTs for open and distance learning (ODL) in the Commonwealth, Green and Trevor-Deutsch (2002) note that in Malaysia, 46% of the students at the Institute for Distance Education Universiti Putra Malaysia are women, in Pakistan, 43% of AIOU students are women; In India, the enrolment of women in Indira Gandhi National Open University (IGNOU) was 28.4% in 1998. Today in Asia, Jung and Fukuda report that female enrolment in most mega and dedicated distance teaching universities is over 50%. This statement seems to have received an endorsement when Green and Trevor note that the Sri Lanka report finds no gender disparity in women's enrolment in schools and tertiary educational institutions, and no apparent difference in trends between conventional universities and ODL institutions. According to them, women represent 60% of the students following external degree programmes.

Green and Trevor-Deutsch (2002) assert that men greatly outnumber women in most ... learning programmes for which statistics were provided in Africa. However, Ngome (2003) observes that while there are some improvements in the enrolment of female students in some private higher education institutions, the female representation in public institutions is still low, with only about 30 per cent of total enrolments in the public universities. Assié-Lumumba (2006) asserts that higher education continues to be clearly identified with the male, especially in Science and Technology and in Management. Quoting the analysis of Pereira (2002:1) in the case of Nigeria, he notes that 'although university systems tend to be spoken of in gender neutral terms, the effects of their workings are far from gender neutral', as illustrated by the proportions of women among the academic staff in Nigerian universities in 1996/97: 9.2 per cent in Social Sciences; 12.8 per cent in Sciences, 14.7 per cent in Arts and 22.2 per cent in Education. Pereira (2002) also notes that the distribution of students in Science and Technology reflected the same pattern of male over-representation as illustrated by the 1996 National Universities Commission (NUC) data that revealed that of the students in Nigerian universities enrolled in Science, only 31.7 percent were women. The corresponding proportions in Social Sciences and Arts were 37.6 per cent and 44.6 per cent respectively. In Ghana, Kwapong (2008) notes that the University of Education, Winneba which began its ODL programme in 1998 has approximately 7000 students with 53% females and 46.5% males in its Level 300 for the 2006/7 school year. University of Cape Coast which began in

2001 has over 18,000 students of 49.7% females and 50.2 males in the Diploma in Education courses.

Several attempts were made to bridge the gap or eliminate the initial disparity across the world. For instance, UNICEF (2009) in a technical paper titled '*Towards gender equality in education: progress and challenges in the Asia-Pacific Region*' states that the United Nations Girls' Education Initiative (UNGEI) has been a part of the response to the call at the international level. Various national governments across the world have also been initiating action plans to meet the goals of universal participation of girls in primary education and moving forward to achieve gender equality at all levels of education and in all spheres of life. The Commonwealth of Learning in its contribution to creating greater awareness on gender issues for the public service organized a two-day meeting in London in July 2008. In its report, COL (2008) notes the proposal of Ms. Janet Jenkins in a paper that there is decreasing attention paid to the specific needs of female learners in ODL and affirm that since the turn of the century, there has apparently been a tapering off of initiatives with a specific gender perspective. COL asserts that Ms Jenkins reminded the delegates that the bedrock of ODL is its capacity to offer wider access to learning, particularly for those otherwise unable to participate, including women. Jung and Fukuda (2013) confirm the assertion when they declare that distance education has expanded the opportunity for the under privileged or marginalized people - women and girls in particular - to access education. Oladokun (2002) had earlier seen this when he asserts that one argument often stated by the advocates of distance education programmes for building "distance teaching" capacity is that the system takes knowledge and training to the marginalised, isolated, underprivileged and the unreachable.

The objectives of the study were aimed at identifying the information needs of distance learners in Botswana, determining how the information needs of distance learners are met, exploring the information resources and services available to distance learners in Botswana and identifying the challenges faced by distance learners in Botswana.

Methods of Study

Qualitative and quantitative research design and a survey method were used for this study. Data for the study were collected via questionnaires. A 20% sample size was randomly selected from University of Botswana (UB) and University of South Africa (UNISA) – the two institutions with 500 or more students, while census method was applied to University of Derby (UD) and Management College of Southern Africa (MANCOSA), which had 100 or fewer students in Botswana. 519 of 1,996 (the total population) became the sample size. From the 519 sample size that was sent the questionnaire, 364 copies (of the questionnaire) were returned duly completed, thus giving a response rate of 70.1%. Data abstracted were analysed using the IBM-SPSS programme. Cross-tabulations and chi-square, non-parametric statistical significance tests were developed to test the relationship of one variable to groupings of others.

Gender

Of the 364 respondents, 42.6% (n = 155) were males and 57.4% (n = 209) were females. The distribution of the respondents by gender according to institutions is captured in Table 1 below. In virtually all the institutions of study, female respondents outnumbered their male counterparts. This seems to suggest that more females were into tertiary level distance education programmes than males in Botswana.

Table 1: Institution and Gender Crosstabulation

University	Gender				Total	% of Total
	Male	%	Female	%		
UB	34	34.7	64	65.3	98	26.9
UNISA	70	44.3	88	55.7	158	43.4
MANCOSA	22	48.9	23	51.1	45	12.4
UD	29	46.0	34	54.0	63	17.3
TOTAL	155	42.6	209	57.4	364	100.0

In the crosstabulation of gender with programme of study, the results indicate that a higher number of female respondents were involved in either first or master's degree programme than the male respondents. For instance, 142 females (39%) registered for first degree as against 91 (25%) males and 67 females (18.4%) were in Master Degree programme as against 64 (17.6%) males. Table 2 gives the details.

Table 2: Gender and Programme of Study: Crosstabulation

		Programme				Total	% of Total
		First Degree	%	Master s	%		
Gender	Male	91	25.0	64	17.6	155	42.6
	Female	142	39.0	67	18.4	209	57.4
Total		233	64.0	131	36.0	364	100.0

Majority (225 or 61.8%) of the respondents lived in the city, 58 (15.9%) indicated they were living in town and 81 (22.3%) respondents said they lived in villages. A large majority of respondents living in urban centres enjoyed a much better and richer information environment than those living in rural locations where information environment cannot be favourably compared with those in urban areas. In crosstabulating gender with location, the result shows that more females were located in the city and town (considered as urban or metropolitan areas) as well as village (rural areas) than their male counterparts. Table 3 below provides further details.

Table 3: Gender and Location Distribution of Study Sample: Crosstabulation

		Location				
			City	Town	Village	Total
Gender	Male	Count	90(24.7%)	27(7.4%)	38(10.4%)	155(42.6%)
	Female	Count	135(37.1%)	31(8.5%)	43(11.8%)	209(57.4%)
Total		Count	225(61.8%)	58(15.9%)	81(22.3%)	364(100.0%)

Gender and social roles

The relationships between gender and each of the major social roles of the respondents (parent, worker, community leader) were cross-tabulated and Chi-square tests performed on the cross-tabulations in order to determine the level of significance. Table 4 shows that gender was significantly related only to the social role of respondents as parents ($X^2 = 9.501$, $df = 1$, $p < .05$). No significant difference was found between male and female in the two other social roles.

Table 4: Relationship between Gender and different Social roles performed by respondents

Social role	Chi-square	Df	Assym. Sig. (2-sided)	Remark
As parent	9.501	1	.002	Significant
As worker	2.107	1	.147	Not significant
As community leader	0.111	1	.739	Not significant

Table 5 shows the expected and observed counts in the cross-tabulation of gender and the social role as parent. The expected counts in the cells of the table are based on the assumption that the row (Gender) and the column (Social role) variables are independent of one another (i.e. have no relationships between them). Comparison of the observed with the expected counts shows that the observed values are significantly different from the expected values, and that more female respondents than expected said 'Yes' to performing the social role of parent, while less males than expected said 'yes'. The conclusion, therefore, is that there is a significant relationship between gender and performance of the parent social role. The finding seems to corroborate the fact that females tend to play the role of parent (usually as single parents) more than males in the Botswana.

Table 5: Gender and Social role (Parent)

		Social Role - Parent				
			Yes	No	Total	% of Total
Gender	Male	Observed Count	72(46.5%)	83(53.5%)	155	42.6
		Expected Count	86.4(55.7%)	68.6(44.3%)	155.0	42.6
	Female	Observed Count	131(62.7%)	78(37.3%)	209	57.4
		Expected Count	116.6(55.8%)	92.4(44.2%)	209.0	57.4
Total		Observed Count	203(55.8%)	161(44.2%)	364	100.
		Expected Count	203.0(55.8%)	161.0(44.2%)	364.0	100.0

Findings in relation to the objectives: Information Needs

The first objective (1) of the study was to identify the information needs of distance learners in Botswana. As such, the objective generated the research question which asked: “*What are the information needs of distance learners in Botswana*”.

In addressing the question, a number of options were made available in the questionnaire for the respondents to choose from. From the reaction of respondents it is obvious but not surprising to note that ‘subjects relating to their course of study’ (Subj) was topmost in the area of their information needs. The option attracted a total of 273 (75%) respondents. The thirst to acquire greater skill in the use of information and communication technologies (ICT) e.g. the Internet was seen as the second priority area. A total of 218 (60%) respondents indicated this option as an information need area. The remaining Information need areas indicated by about half of respondents include information on Tests, examinations and residential sessions/periods (Tests) (51.6%) and the Development of information searching skills (Search skills) (50.8 percent).

In a descending order the information need areas that attracted less than half of the total respondents include: Access to a help line (41.2%), Making information-based decisions (Info Dec) (31.3%); and the Need for specialized information (Spec Info) was the least with 29.7 percent in its favour.

Attempt was also made to establish the relationships between gender and what the learners would consider as their information need areas. The variables were cross-tabulated and chi-square tests performed. Table 6 indicates that gender was significantly related *only* to “making information-based decisions” among other possible options that the distance learners would consider as information needs areas ($X^2 = 8.105$, $df = 1$, p

<.05). No significant difference was found between male and female in the other information needs areas.

Table 6: Relationship between Gender and Information needs areas

Information Needs Areas	Chi-square	Df	Asymp. Sig. (2-sided)	Remark
Subjects relating to their course of study	1.981	1	.159	Not significant
Development of information search skills	.222	1	.637	Not significant
Tests, examinations and residential sessions/periods	.740	1	.390	Not significant
Use of ICT	1.250	1	.263	Not significant
Need for specialized info	.866	1	.352	Not significant
Access to a help line	.790	1	.374	Not significant
Making info based decisions	8.105	1	.004	Significant
Others	2.079	2	.354	Not significant

Table 7 below shows the expected and observed counts in the cross-tabulation of gender and making information-based decision as an information need area are shown. The expected counts in the cells of the table are based on the assumption that the row (Gender) and the column (Information needs areas) variables are not associated with one another (i.e. there are no relationships between them). Comparison of the observed with the expected counts shows that the observed values are significantly different from the expected values. While fewer female respondents than expected responded in the affirmative (yes) to the information need area of making information-based decisions, more male respondents than expected said 'yes' - they would need information for making information-based decisions. The conclusion drawn is that there is a significant relationship between gender and information need area of making information-based decision. The finding implies that male distance learners tend to have greater need to making information-based decisions than females. The cross-tabulated Table 7 below shows the relationship between gender and making information-based decisions.

Table 7: Relationship between Gender and Making Information based decisions

Crosstab

		Information needs area - Making info based decisions				
			Yes	No	Total	% of Total
Gender	Male	Observed Count	61 (39.4%)	94 (60.6%)	155	42.6
		Expected Count	48.5 (31.3%)	106.5 (68.7%)	155.0	42.6
	Female	Observed Count	53 (25.4%)	156 (74.6%)	209	57.4
		Expected Count	65.5 (31.3)	143.5 (68.7%)	209.0	57.4
Total		Observed Count	114 (31.3%)	250 (68.7%)	364	100.
		Expected Count	114.0 (31.3%)	250.0 (68.7%)	364.0	100.0

Meeting the information needs of distance learners

The second objective of the study was set out to determine how the information needs of distance learners are met. Consequently, the second research question was formulated. *How do distance learners meet their information needs?* In addressing the question, a number of questions were raised.

In their response to how they obtained the information needed to prepare their assignment, test or examination etc, majority of the respondents (341) constituting 93.7% indicated that they used their modules and study packages. The use of the Internet came a distant second with 238 respondents (65.4%). This was followed by “I discuss with colleagues” option with 229 respondents (62.9 percent) subscribing to it. Other options used to obtain information needed to prepare their assignment etc include: asking for assistance from expert or knowledgeable people 41.8% (n = 152); approaching the coordinator or agent of the institution 19.8% (n = 72); listening to radio/television 14.3% (n = 52); and speaking to or writing subject librarian 8.8% (n = 32). It is important to note that 8 respondents specified ‘Others’ in their responses. Five of them indicated they would borrow books from the library or from past and present students, 2 said they would buy prescribed books and 1 respondent said he/she obtained information needed “through email to and from the lecturer”.

Effort was made to establish the relationships between gender and other sources used by distance learners to meet their information needs. The variables were cross-tabulated and chi-square tests performed. Table 8 indicates that gender was significantly related *only* to the use of email as an information source ($X^2 = 7.021$, $df = 1$, $p < .05$). No significant difference was found between male and female in the other information sources.

Table 8: Relationship between Gender and how information is obtained: Information Sources

Information sources	Chi-square	Df	Asymp. Sig. (2-sided)	Remark
Internet	2.569	1	.109	Not significant
Radio/Television	2.309	1	.129	Not significant
Telephone	1.798	1	.180	Not significant
Lecturer	.802	2	.670	Not significant
Email	7.021	1	.008	Significant
Course Coordinator	3.146	1	.076	Not significant
Web Search materials	1.352	1	.245	Not Significant
Library Resources	.061	1	.804	Not Significant

In Table 9 below the expected and observed counts in the cross-tabulation of gender and the use of email as an information source. The expected counts in the cells of the table are based on the assumption that the row (Gender) and the column (Information source) variables do not depend on one another (i.e. have no relationships between them). A comparison of the observed with the expected counts indicates that the observed values are significantly different from the expected values, and that less female respondents than expected said 'yes' to email as an information source, while more males than expected said 'yes'. It is therefore concluded that a significant relationship exists between gender and use of email as an information source. The finding suggests that more males than females use emails.

Table 9: Relationship between gender and information sources: E-mail

Crosstab

		Info sources – E-mail		Total	% of Total	
		Yes	No			
Gender	Male	Count	84 (54.2%)	71 (45.8%)	155	42.6
		Expected Count	71.5 (46.1%)	83.5 (53.9%)	155.0	42.6
	Female	Count	84 (40.2%)	125 (59.8%)	209	57.4
		Expected Count	96.5 (46.2%)	112.5 (53.8%)	209.0	57.4
Total		Count	168 (46.2%)	196 (53.8%)	364	100.
		Expected Count	168.0 (46.2%)	196.0 (53.8%)	364.0	100.0

Information resources and services available to distance learners in Botswana

The third objective of the study aimed at exploring the information resources and services available to distance learners in Botswana. Thus the third research question “*What information resources and services are available to distance learners in Botswana?*” was raised to address the objective. In order to elicit information and respond to the issue, a number of questions were put across to the respondents. First, they were asked their preferred information format from three options of *print*, *electronic* and *audio visual* that

were presented to them. The result showed that majority of them 216 (59.3%) would prefer print format, 123 respondents (33.7%) preferred electronic and 24 (6.6%) audio-visual. The findings here would hopefully shed light on the information format the distance learners desired. The cross-tabulation reveals that the significance level of X^2 value was 0.021 which is less than 0.05. Thus it means that the distance learners in Botswana, irrespective of gender, significantly have preferred information format from the three available choices (print, electronic and Audio-visual formats).

The relationships between gender and the library and information services used in the past year were cross-tabulated and Chi-square tests were performed on the cross-tabulations. Table 10 shows that gender was significantly related only to Reference ($X^2 = 12.909$, $df = 1$, $p < .05$) and Journals ($X^2 = 4.298$, $df = 1$, $p < .05$) as library and information services. No significant difference was found between the gender and other library and information service.

Table 10: Relationship between Gender and Lib & Info services used in the past year

Lib & Info services used in the past year	Chi-square	Df	Assym. Sig. (2-sided)	Remark
Reference	12.909	1	.000	Significant
Check out materials	.294	1	.588	Not significant
Journals	4.298	1	.038	Significant
Inter library loans	1.528	1	.216	Not significant
Materials on reserve	1.304	1	.253	Not significant
Online d'base/catalogues	1.271	1	.260	Not significant
Microfiche/microfilm	.106	1	.745	Not significant
Web searches	1.771	1	.183	Not significant
Government publications	2.907	1	.088	Not significant
Photocopying	1.449	1	.229	Not significant

Tables 11 and 12 show the expected and observed counts in the cross-tabulation of gender and the information resources (listed above) used in the past year. Comparison of the observed with the expected counts shows that the observed values are significantly different from the expected values, and that in Table 11 more male than expected said 'yes' to using Reference as an information source in the past year, while less female than expected said 'yes'. The conclusion, therefore, is that there is a significant relationship between gender and library and information resources used. Similarly in Table 12, more male than expected said 'yes' to using Journals and less female than expected said 'yes'. The findings seem to suggest that men use those library and information facilities than women distance learners in Botswana.

Table 11: Gender and Info services used in the past year (Reference)

		Crosstab				
		Info services used in the past year - Reference				
			Yes	No	Total	% of Total
Gender	Male	Count	77(48.7%)	78(51.3%)	155	42.6
		Expected Count	60.5(39%)	94.5(61%)	155.0	42.6
	Female	Count	65(31.1%)	144(68.9%)	209	57.4
		Expected Count	81.5(39%)	127.5(61%)	209.0	57.4
Total		Count	142(39%)	222(61%)	364	100.
		Expected Count	142.0(39%)	222.0(61%)	364.0	100.0

Table 12: Gender and Info services used in the past year (Journals)

		Crosstab				
		Info services used in the past year - Journals				
			Yes	No	Total	% of Total
Gender	Male	Count	86(55.5%)	69(44.5%)	155	42.6
		Expected Count	76.2(49.2%)	78.8(50.8%)	155.0	42.6
	Female	Count	93(44.5%)	116(55.5%)	209	57.4
		Expected Count	102.8(49.2%)	106.2(50.8%)	209.0	57.4
Total		Count	179(49.2%)	185(50.8%)	364	100.
		Expected Count	179.0(49.2%)	185.0(50.8%)	364.0	100.0

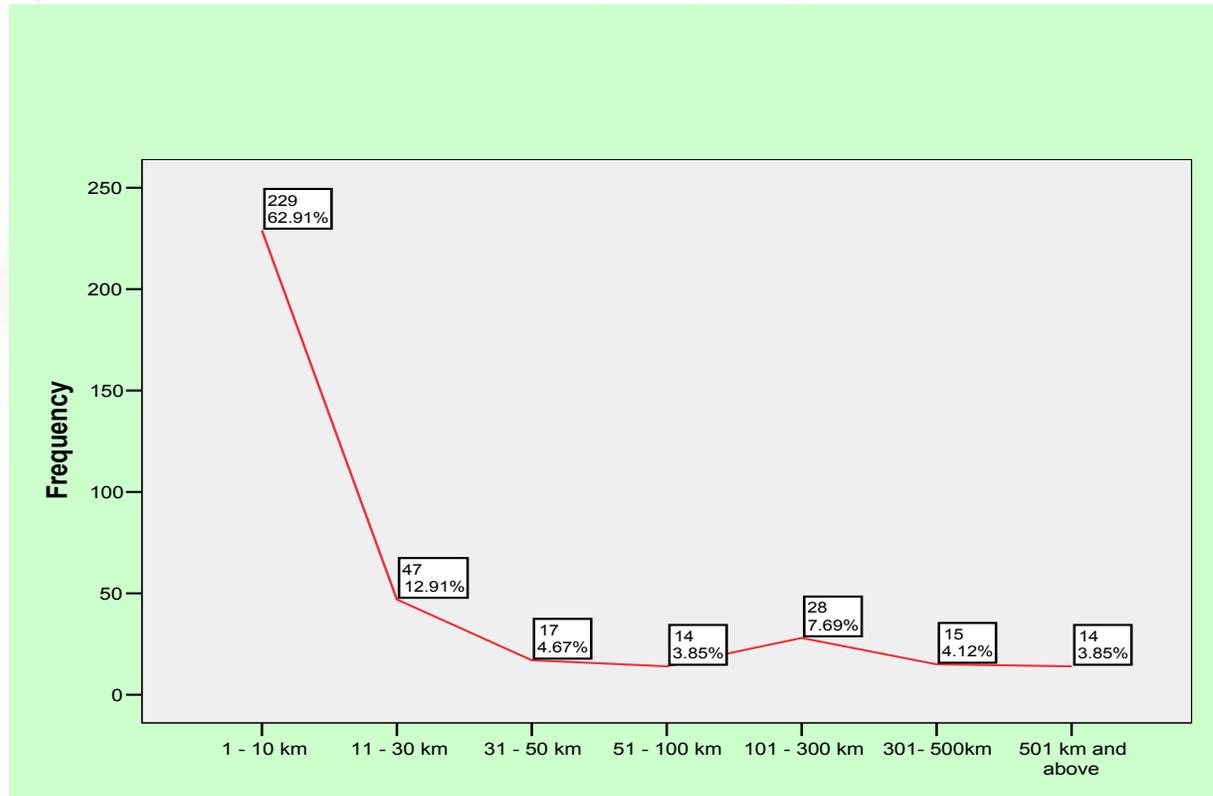
Challenges confronting distance learners in Botswana

Another objective of this study was aimed at identifying challenges faced by distance learners in Botswana. In examining the question, a number of probing issues were raised with the distance learners (respondents). These include the distance they had to travel before getting to the nearest University Library or information Centre, the source of light used where they lived, domestic study circumstances, their fears and the barriers that affect their use of information sources, among others.

With respect to the distance they had to travel to the nearest University Library or Information Centre to meet their information needs, 62.9% of them indicated they travelled between 1-10 kms, 12.9% lived at a distance of 11-30 kms, 4.1% would need to cover a distance that ranged from 301 to 500 kms and another 3.8% travelled a distance

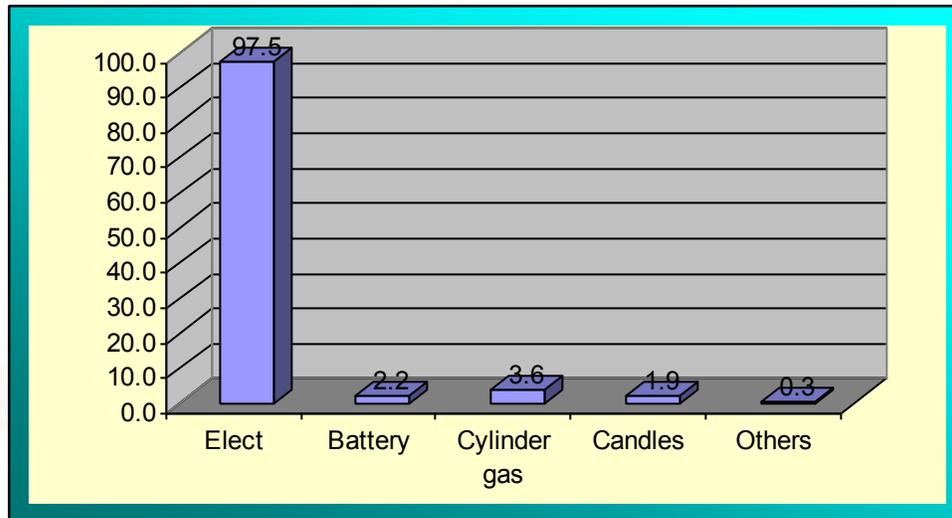
of 501 kilometres and above to get to the nearest university library and information centres to meet their information needs. Other details are as shown in Fig. 1 below

Fig. 1: Distance travelled to nearest University Library and Info. Centre



Since distance education is a self-directed learning and not face-to-face of the conventional system, it was considered necessary to probe into the source of light used by respondents in their homes and invariably to study as they self-direct their studies. The type of light used might have some impact on their accessibility to and use of information resources and services for their studies. As seen in Fig. 2 the findings to this query indicate that majority of them (97.5%) used permanent electricity supply; only 3.6% claimed they used cylinder gas; 2.2% used battery power and 1.9% specified using candles and/or paraffin lamps. Only 1 respondent ticked 'other' as source of light without clearly specifying it.

Fig. 2 Source of light used by distance learners at home



The relationships between gender and each of the major barriers affecting the respondents' use of information sources were cross-tabulated and Chi-square tests performed on the cross-tabulations. Table 13 shows that gender was significantly related only to lack of well equipped library ($X^2 = 7.541$, $df = 1$, $p < .05$) and lack and cost of equipment ($X^2 = 4.372$, $df = 1$, $p < .05$) as barriers to using information sources. No significant difference was found between male and female in the remaining barriers.

Table 13: Relationship between Gender and Barriers affecting distance learners use of Information sources

Barriers	Chi-square	Df	Assym. Sig. (2-sided)	Remark
Lack of time	.774	1	.379	Not significant
Dearth of useful materials	1.304	1	.253	Not significant
Isolation	1.971	1	.160	Not significant
Lack of well equipped library	7.541	1	.006	Significant
Lack and cost of equipment	4.372	1	.037	Significant
Lack of technological skill	.035	1	.851	Not significant

In Tables 14 and 15 the expected and observed counts in the cross-tabulation of gender and lack of well equipped library; as well as lack and cost of equipment being barriers affecting the use of information sources by the respondents. Comparison of the observed with the expected counts shows that the observed values are significantly different from the expected values, and that more male respondents than expected said 'yes' – they had the barriers of 'lack of well equipped library' and lack/cost of equipment, while less females than expected said 'yes'. The conclusion here is that there is a significant relationship between gender and 'lack of well equipped library and lack/cost of equipment as barriers. The finding shows that more females were in locations where they could access well equipped library than males.

Table 14: Gender and Barriers affecting use of information sources (Lack of well equipped library)

Crosstab

		What barriers affect your use of information sources? - Lack of well equipped library				
			Yes	No	Total	% of Total
Gender	Male	Count	70(45.2%)	85(54.8%)	155	42.6
		Expected Count	57.5(37.1%)	97.5(62.9%)	155.0	42.6
	Female	Count	65(31.1%)	144(68.9%)	209	57.4
		Expected Count	77.5(37.1%)	131.5(62.9%)	209.0	57.4
Total		Count	135(37.1%)	229(62.9%)	364	100.
		Expected Count	135.0(37.1%)	229.0(62.9%)	364.0	100.0

Table 15: Gender and Barriers affecting use of information sources (Lack and cost of equipment)

Crosstab

		What barriers affect your use of information sources? - Lack and cost of equipment				
			Yes	No	Total	% of Total
Gender	Male	Count	45(29.0%)	110(71.0%)	155	42.6
		Expected Count	36.6(23.6%)	118.4(76.4%)	155.0	42.6
	Female	Count	41(19.6%)	168(80.4%)	209	57.4
		Expected Count	49.4(23.6%)	159.6(76.4%)	209.0	57.4
Total		Count	86(23.6%)	278(76.4%)	364	100.
		Expected Count	86.0(23.6%)	278.0(76.4%)	364.0	100.0

Discussion

The results of the study indicate that a higher number of female respondents were both in the first and master's degree programmes than the male respondents. For instance, 142 females (39%) registered for first degree as against 91 (25%) males and 67 females (18.4%) as against 64 (17.6%) males were in Masters Degree programme. The findings confirm the statement of Assié-Lumumba (2006) at first and master's degree levels that the female enrolment rates are higher than those of males in Southern African especially

in Botswana and Namibia. Assié-Lumumba appeared to have confined her study to primary school level.

On the information needs of distance learners, the study shows that while there may be no established relationships in other information needs areas, there is a significant relationship between gender and information need area of making information-based decision. The finding reveals that male distance learners tend to have greater need to making information-based decisions than females. A number of authors, such as Singh (2002) and COL (2003) among others have expressed views on what should constitute the information needs of distance learners. Of particular relevance to distance learners in Botswana are the information needs as expressed by the Commonwealth of Learning (COL). COL (2003) affirms that the basic information services that distance learners need, among others, are developing ways to apply the information gleaned and to make sound, information-based decisions. It is however observed in this study that the latter i.e. making information-based decisions was found more among male and urban-located distance learners than among female and rural-based learners. Specifically, the findings indicate that gender and locational characteristics of distance learners do have implications for types of learning-related decisions made, as well as the nature of information needed by the distance learners.

In the second objective that determines how the information needs of distance learners are met; the findings showed that gender was significantly related only to the use of email as an information source. Even though many information sources were listed and used as noted earlier in the findings, less female and more male respondents than expected indicated that they used email as an information source. The finding confirms that the Internet is more accessible, available and possibly more affordable in cities and towns than in villages. Head (2007) observes how recent research has made claims about students' reliance on the Internet for academic research over their use of campus libraries. Email being a facility of the Internet, Head quotes Research from the "Pew Internet & American Life Project" which observed that nearly three-quarters (73 percent) of college students used the Internet for research more than the campus library (Jones, 2002). He also observes that other findings suggest a vast majority of students turn to the Internet first for academic research (Griffiths and Brophy, 2005). In another survey of the University of Iowa distance education students, McLean and Dew (2004) found that access to electronic resources ranked the highest. The current investigation in Botswana has also established that access to the Internet and consequently, electronic resources, ranked the highest among the distance learners, and more male than female respondents used email (the internet) as information source.

In the exploration of the information resources and services available to distance learners in Botswana, the study found that of all the resources and services indicated as having been used, gender was significantly related only to "Reference" and "Journals" as information resources used in the past year. The findings showed that more male and less female than expected affirmed having used Reference and Journals as information sources. The fact that majority of distance learners would visit the library in person over other methods such as using email, SMS text messages, toll-free telephone, leaving messages on telephone answering machine, facsimile etc, shows that the traditional library service is still in vogue even for distance learners. These results seem to be at

variance with the understanding in some Library Associations e.g. ACRL (2004) and CLA (2000) that traditional library service designed for on-campus users, will not meet the requirements of distance learners. In his attempt to determine the information seeking by research students studying via distance delivery mode at Deakin University, Australia, Macauley (1997) notes that the traditional types of services are still the most requested and used. This survey notes that while distance learners would like to use fast resources like the Internet, their location may have some significant impact on their accessibility to the facility. This probably accounts for the distance learners rebound to Reference and hardcopy journals.

While identifying the challenges faced by distance learners in Botswana, the study found that gender was significantly related only to lack of well equipped library and lack/cost of equipment as barriers to using information sources. The finding shows that more females than males were in locations where they could access well equipped library and would therefore not complain of lack or cost of equipment. Further still the study found less respondents in the city and more in town and village than expected indicated lack of well equipped library as a barrier. This finding is a confirmation that there is the presence of the university main or branch library that is well equipped in the two cities in Botswana but not in towns and villages. Green and Trevor-Deutsch (2002) observe that female students in Asian DE face barriers when the course content is not directly relevant to their livelihood; when it does not value their knowledge, wisdom, and experience; when access to the content is too costly; and when they do not feel able to use the technology competently or confidently. This observation Kanwar and Taplin, (2001) assert is supported by case studies that detailed how Asian female distance learners had overcome frustrations and succeeded in their learning.

Conclusion and Recommendations

With the capacity to take knowledge and training to the marginalised, isolated, underprivileged and the unreachable, ODL also has the capability to assist in gender mainstreaming. Information is known to be of great value in educational and research institutions, as well as other environments where learning takes place. This is seen in the pride of place given to information resources and services in institutions of higher learning. The study found some imbalances that tilt against the female especially in some notable areas where comparison is drawn in the study. For example, the study found that male distance learners tend to make information-based decisions than females in the first objective of the study. The second objective that attempts to determine how the information needs of distance learners are met established that a significant relationship exists between gender and use of email as an information source with the result that more males than females use emails. In the third objective this study also established a significant relationship between gender and library and information resources used. The finding revealed that men use 'Reference' services and 'Journals' than women distance learners in Botswana. What then could have accounted for the seeming lopsidedness against female respondents? The study seems to suggest the significant social role of parent (usually as single parents) that females tend to play more than males in Botswana is partly responsible. Taplin and Jegede (2001) and Von Prümmer (2000) in their study

assert that Asian female learners ask for supports that assist them to overcome personal and social barriers and achieve high performance. They observe that for female learners, quality DE may mean a system that removes these barriers, that maximizes opportunity, that provides needs-based learner supports, and that is based on the understanding of their perceptions, concerns, and experiences. Other reasons that could account for the disparity and remove the barriers or assist in addressing the imbalances are embedded in the recommendations offered below.

- Adequate publicity is required, particularly to female distance learners, on library and information services that are available for utilization. It should be part of the marketing strategies of a library to adequately publicize the services available to its users, particularly distance learners.
- There is need to make computing and information literacy skills mandatory for distance learners.
- Necessary provision of information resources and services through the establishment of study centres in strategic locations across the country is imperative.
- Distance teaching institutions should establish mutual partnerships with viable institutions, schools or public libraries for their students to have easy access to materials
- Adequate application of cell phone functionalities and social media platforms should be encouraged
- ICTs like emailing system, telephone answering machine, short message service (SMS) and instant messaging, among others, are necessary facilities that can be adopted to easily contact distance learners in their various locations
- The distance learners (DLs) should be encouraged to make use of Help or Reference Desk even at a distance and librarians (who should familiarize themselves with the DLs at the commencement of their studies.
- Even though the information world is going digital, distance learning environment in Botswana and Africa in general still subscribes to print format. Print format should therefore not be discarded yet, even as digital method of communication is encouraged

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Motivation of Extrovert and Introvert Gamer's using Different Screen Sizes

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Abstract

The use of games as educational activities have been widely discussed and studied, and more recently it has been suggested that the use of handheld game consoles inside classrooms could be beneficial. However, little has been done to study the role of screen sizes when playing educational or positive games in these environments. This study focused upon the influence of screen size when playing educational/positive games on the gamers' behaviour. Thus, being able to conclude which screen size would impact a gamer more effectively when playing an educational game. An ethnographic study and inductive analysis were undertaken to compare two screen sizes (40 inch TV screen playing the Nintendo Wii and 3.12 inch dual screen on the Nintendo DS). The games that were used in the study were the Big Brain Academy™ and Mario Kart™. The results showed a distinct difference in behaviour based on the gamers personalities (Extrovert and Introvert gamers), and the preference of screen size are different for these two type of gamers.

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Motivation of Extrovert and Introvert Gamer's using Different Screen Sizes

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Introduction

Combining games and education has been widely discussed as an option to introduce fun in learning. There are a wide range of games platforms that could be researched that include computer games and video consoles. Common video console choices are the Nintendo Wii, Sony© PlayStation, and Microsoft© Xbox that are usually played on a monitor or television. They can also include portable consoles such as Nintendo Ds and the PlayStation Portables. Studies have been done in learning the potential of using these small screen portable consoles in classroom and for education (Bunce, 2010, Morgan et al., 2007, Shirali-Shahreza, 2008). However, there is little research on the impact of these consoles in term of their screen size to the gamer. This research compared two screen sizes; a 40 inch TV screen playing the Nintendo Wii, and a 3.12 inch dual screen on the Nintendo DS, to find how these two types of game console and screen size impact gamers. The games chosen for the study were the Big Brain Academy™ and Mario Kart™. This paper will begin with a discussion of the literature related to the research, and then it will continue with the research design. The paper continues with a discussion of the results that show that the preferences of screen size are connected to the personality type (extrovert and introvert) of the gamers.

Screen size and Gaming.

Media and sales have promoted the use of big screens in entertainment and gaming to the public, claiming that the bigger the better. However, the popularity of small screen portable gaming devices is also undeniable, in 2012 the sales of Nintendo Ds and the Sony PSP was up to 153 million units and 62.2 million units respectively, worldwide (Nintendo Co., 2013, Inc, 2013). Although research into the screen size of gaming environments is inconsistent, the preference of the screen size may be subject to the social context of the viewing experience. Small screens might be preferable in personal settings whereas large screens may be preferred in a shared public environment (Grabe et al., 1999). Since then, there have been mixed reviews on user experience and their preferences of screen sizes. Larger screen could give the advantage of increasing user productivity, aid user recognition memory, and are preferable in a daily work environment (Czerwinski et al., 2006, Bi and Balakrishnan, 2009). There is also research evidence that for certain tasks there is no advantage in using a large display. Tasks such as reading comprehension do not profit from large displays but users did perform better during spatial orientation tasks or path integration on large displays (Gibbs, 2007, Boeije, 2010).

In the gaming experience, there is varied evidence of the effect of screen size. (Sabri et al., 2007) concluded that using a large high resolution screen (9 monitors, 2400x1800) does enhance gaming experience when playing a real-time strategy game. Some (Laarni et al., 2005) claim that participants experience a higher sense of

presence when a game is projected on a large screen but intentional engagement is at the same level when playing with either a PC or a PDA. A quantitative study done by (Hou et al., 2012) comparing a 12.7 inch and an 81 inch display showed that “*playing in front of a large screen led to a more favourable impression on the game character, a more positive mood and significant higher self-presence*”(p.617). However, their hypothesis on gamer’s enjoyment and immersion tendencies in favouring the larger screen size was unsupported.

Even though there might be an understanding that large screen size could be a better choice for a better gaming experience, there has been an increased interest in the use of small screen consoles. A study has already revealed that playing a Nintendo DS (a small screen device) provided more control in terms of portability, privacy, and players are more immersed in the game (Evans, 2006 as cited by Pulman, 2006). It is undeniable that the advantage of having handheld devices are their portability. Gamers also reported that their gaming goals in using a Nintendo Ds are “*to pass time, to learn to keep one’s mind sharp, to be social and to engage in competitive play.*” (Szentgyorgyi et al., 2008).

In education, there has been increased interest in using video games and handheld consoles as learning devices in classrooms. (Bunce, 2010) reflected that “*the Nintendo Ds has great potential for collaborative and inquiry based learning in schools, increased student motivation and implication for staff training and support.*”(p.172). Other researchers have also implied that handheld consoles have a high potential in learning environments (Bunce, 2010, Rubin and Rubin, 2005, Braun and Clark, 2006).

Understanding the potential of gaming for education and its use in classrooms, this study was conducted using an ethnographic method by comparing two screen sizes (40 inch TV screen playing the Nintendo Wii and 3.12 inch dual screen on the Nintendo DS) in an effort to understand the influences on the gamer’s behaviour.

Research Design

A simulated gaming environment (SGE) was created as a natural environment to conduct the participant observation and ethnographic interviews. The environment was envisioned to be focussed on comfort and to be ‘homelike’. A pilot study was conducted to provide insight into the suitability of using the simulated environment for the ethnographic research. The result of the study found that the gamers was comfortable and felt “like at home or at a friend’s house” when playing in the SGE. The gamers stated that once playing the game, the surrounding environment did not impact their gaming experiences (Zainal Abidin and Wellington, 2011). Furthermore, (Murchison, 2010) stated that “*Talking about ‘the field’ in ethnography is no longer easy to do as it once was. In a way, the field is everywhere and nowhere at the same time. A field site can be referred to as a location of doing research but avoids referring it as a monolithic place of research*” (p.14).

In this SGE, there was a sofa and an easy chair, a book shelf where the DVD games, comics and miniature characters were displayed, a coffee table, and a television stand that would fit a 40 inch television as well as video consoles. A few cushions, some gaming and comics posters on the wall were used for aesthetics purposes. The room was carpeted, and the gamers would had the option to play in a dimmed or bright room. Refer to figure 1 for a 3D model of the simulated environment. Evidence suggested that the lighting of the room was a significant contributor to the mood.

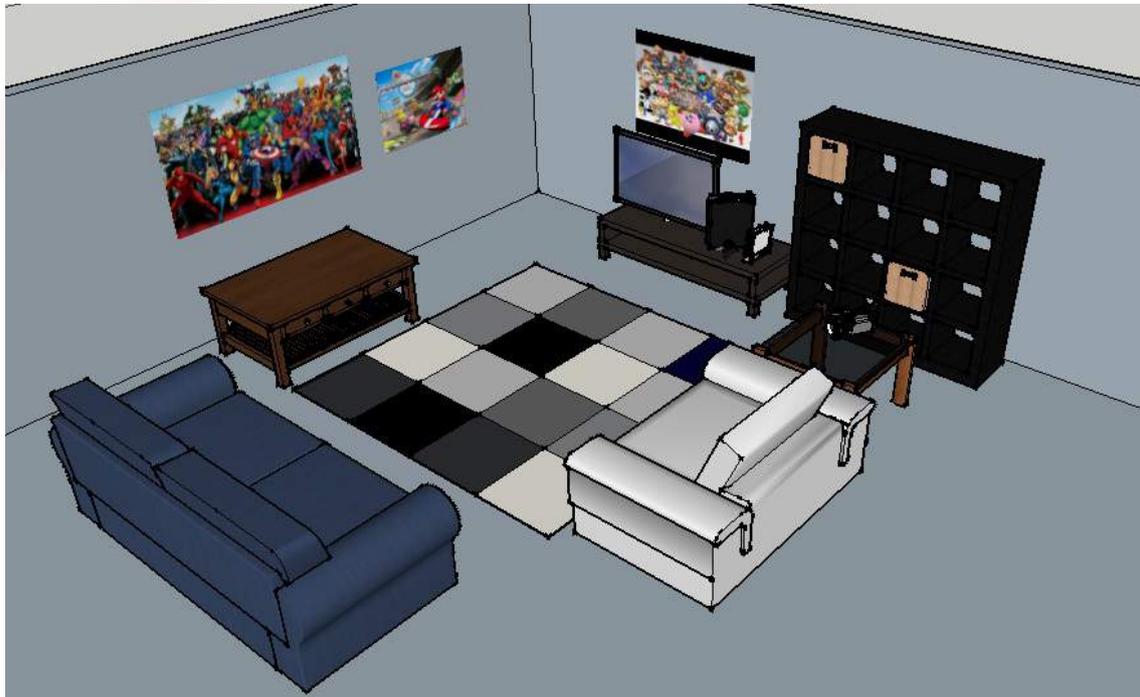


Figure 1: The simulated gaming environment

The equipment that was used in the research was, a Sony Bravia 40 inch television, a Nintendo Wii, a Nintendo DS, Sony Digital HD Video Camera Recorder and a Sony IC (Integrated Circuit) Recorder.

Two particular game genres that were chosen for this research were, an educational puzzle genre game (the Big Brain Academy) and racing genre game (MarioKart). The study tried to first choose a game that was available to be played on a big screen display (40 inch) using the Nintendo Wii and a small screen display (3 inch) using the Nintendo DS. Then, the game needed to use the same input method and have similar game play on both screen sizes. This; however, is difficult because of the different devices, and therefore the different controls used. Even the game stages in the game themselves have been created to suit the game consoles. The different characteristics of the controllers do emerge as significant data in the study and is discussed later here.

Data Collection Process

In ethnographic research, the researcher (ethnographer) has the unique position of being the primary research instrument (human instrument) in collecting and analysing the data. Relying on all his or her senses, thoughts and feelings, the human instrument is the most sensitive and perceptive data gathering tool (Murchison, 2010, pp. 12-15). The data gathered for this research would be collected using two ethnographic data gathering methods, which are participant observation and ethnographic interviews. Based on literature these data collection methods are widely used in ethnographic research (Angrosino, 2007, Creswell, 2009, Murchison, 2010) and they relate to the "*Principle of interaction between researchers and the subject for interpretive field research where data is constructed through the interaction between the researchers and participants*" (Klein and Myers, 1999) for interpretive research.

The sampling method was purposive sampling or judgemental sampling where participants are selected based on the researcher's judgement that the participant would be the most suitable candidate to provide the information required for the study (Fetterman, 2010). Creswell (2009) states that "*purposefully select participants or sites (or documents or visual material) that will best help the researcher understand the problem and the research question*" (p.178). Moreover the use of purposeful sampling is to make sure that the researcher will learn, discover and gain insight from the most suitable sample that would provide the most information on the research topic (Merriam, 2009).

The criteria for the selection of the gamers are the participant must have sufficient knowledge and skill on how to play video games (i.e. has ample knowledge in game play or using certain controllers). Secondly, that the gamers are from the age 18 to 40 years old. Lastly, that the participants are gamers that include gaming in their daily activity whether it is computer gaming, playing game on their mobile or consoles games. As this study was expected to be a longitudinal one, the participants were expected to attend more than one session. In this research 609 minutes of video data containing observation of gameplay sessions and informal interviews were collected from 18 gamers. In conducting participant observation the total length, the scope and the frequency of time spent in the "field" is also important in the collection of data (Murchison, 2010). (Morse, 2000) also adds that there are four factors to be considered when determining sample sizes, which are "*the scope of the study, the nature of the topic, the quality of data and the use of shadowed data*". In addition to this, in qualitative studies the sample size usually follows the concept of saturation. "*Data saturation usually means that the collection of new data does not shed any further light on the issue under investigation.*" (Mason, 2010). However, Morse (1995) states that "*the quantity of data in a category is not theoretical important to the process of saturation. Richness of data is derived from detailed description, not the number of times something is stated*". Therefore, the sample size was adequate to provide in-depth and saturated data for this research.

Analysis

The data analysis of this research was done inductively, which begins with close reading of data, then identifying important sections of data that contain meaning and creating codes/ nodes for a new category which the data can be assigned (Thomas,

2006). (Braun and Clarke, 2006) states that an inductive analysis is “*a process of coding the data without trying to fit it into a pre-existing coding frame, or the researcher’s analytic preconceptions. In this sense, this form of analysis is data driven. However, it is important to note, that researchers cannot free themselves of their theoretical and epistemological commitments, and data are not coded in an epistemological vacuum.*” (p. 12)

When creating the process to follow in analysing the data, the study referred to Thomas’s (2006) general procedure for inductive data analysis and the generic qualitative theoretical thematic analysis processes summarized by Braun and Clark (2006). The analysis process was to allow the theme to emerge from the data.

The next step of the analysis was identifying which categories are most relevant to the research study. Codes were organised in accordance to game genre, screen size and single player or multiplayer to find the relationship between them. Codes also were colour coded in accordance with observations or comments made by participants. This is to identify in which scenario a certain category is more prominent. The analytical process of data interpretation starts here where choices were made on which code or category was important to the research study. An analytical interpretation of the codes and themes were then carefully discussed as the results of this study.

Results

It was clear in the observation data that there were two types of distinctive gamers, the extroverts and the introvert gamers. The outcome of this study was then, on the effect / relationship that the screen size has on the extrovert and introvert gamers and their screen size preference.

Extrovert Gamers

The term extrovert was used by C.G Jung that indicates extroverts are characterized by their interest in people and things, a relationship with them and a dependence on them. (2009), Brownfield (1993) defined that “*people who prefer extraversion tend to focus on the outer world of people and things.* (p. 8)” During his study, exploring the interplay between player and “character selves” in role-playing games Yee (1999) found that extrovert gamers are “*energized by social interactions. They are active and feel at home in crowds or busy places*”(p 11). Table 1 below shows the characteristic of an extrovert person. The Big-Five Personality Model adds that extraversion personality traits would also include being talkative, lively and outgoing (Fang and Zhu, 2011) . Fang & Zhu (2011) further conclude that computer game players that have extraversion personality traits will likely prefer a game that requires extensive social interaction.

Table 1 shows the different characteristics of an extrovert person based on literature.

C.G Jung (2009)	Myers and Briggs Indicator for Extrovert in Learners (Brownfield, 1993)	Yee (1999) Character of RPG gamers relation with the Extrovert Player
Motivated by outside factors and greatly influence by the environment	Focus on outer world of people and things. Think and learn best when talking, like cooperative learning groups, and they rely more on trial and error than on forethought when solving problems.	The main appeal for RPG's for extroverts is the social aspect. The opportunity to interact with other people
Sociable and confident in unfamiliar surroundings, less cautious, less fearful	Get bored with long slow jobs and do not do as well when forced to keep everyone else pace.	Easy to role-play character with different personalities and experiences. Thus do not have a preference for one character class over another.
Like organizations, parties, and tends to be optimistic and enthusiastic	Like action and variety. (classroom full of group discussion, hand-on activity and active breaks from the solitary tasks of reading and writing)	Enjoy the hack-and slash aspect of role – playing but rather be playing in a system that does not base characters on numbers and fixed classes.

Introvert Gamers

C.G Jung then characterized introverts as an inward flowing of personal energy, a withdrawal concentrating on subjective factors, introverts prefer reflections to activity (2009). Brownfield (1993) state in her research that “*people who are introvert are motivated by their inner worlds not needing a lot of outside energy to drive their interest*” (p.8). Yee (1999) found that “*introverts are people who usually appear reserved and shy in social situations*” (p10). Table 2 describes the characteristic of an introvert.

Table 2 shows the different characteristics of an introvert person based on literature.

C.G Jung (2009)	Myers and Briggs Indicator for Introvert in Learners (Brownfield, 1993)	Yee (1999) Character of RPG gamers relation with the Introvert Player
Happy alone with a rich imagination, Prefers reflection to activity	More interested in having quiet learning environments where they can think things out and concentrate on the task at hand.	People who appear reserved and shy in social situations. They are taxed by interactions thus prefer to be alone or with a small group of friends
Not interested in facts per se but are interested in abstract ideas. Facts are not collected for their own value. Give little attention to their relationship with the world	Would rather work alone than in groups because do not want to be interrupted	Put aside time for reflection and introspection. Often hide their personality in real life and put up a façade for the world
Sensitive and imaginative	More comfortable in the lecture-based teaching format. Schools are usually structured in favor of introvert with student sitting quietly in rows while teachers lecture to them.	In RPG, they allow their real identities to be expressed in their characters. This allows them to feel more secure in the hidden self. They like the systems of classes and types appeal to them rather than the hack-and-slash aspect of RPG.

The participant observation examples in the next sections are excerpts of the sessions conducted with an introvert and extrovert gamer. The observation of all behaviour and comments were written down and video recorded.

An Example of Participant Observation Sessions with Brian (synonyms) (Extrovert Gamers)

Single player session playing Mariokart Wii and Mariokart Ds. [Brian]

Brian entered the SGE with a big smile on his face. He was excited to be starting off the session. Brian loved playing games and was thrilled on seeing the 40 inch television for him to try with the Nintendo Wii. Brian is a really jovial guy, laughing and likes making jokes. He has around 15 years of gaming experience. He has tried most of the consoles and particularly likes the PlayStation 3 where he likes to play football and First person shooter games. He is also familiar with the Nintendo Ds; however he has never tried the Nintendo Wii.

He started the session by trying out the single player game on the big screen using the Nintendo Wii. He did ask for some basic instructions on how to play the game and

how to use the Wii Mote. John another gamer was also there watching, John was not a quiet audience though, he give instructions, laughed and joked around with Brian on some occasions. Brian was not annoyed by this. He showed that he liked having a friend there to watch him play.

Brian is a very expressive gamer, he stomped his foot and laughed loudly when he made a mistake or got overtaken by another (computer) player. He was shouting and screaming at the game. He would follow the action in the game, for example when the car is bouncing on a mushroom, he would be jumping and nodding his head as if he was bouncing as well. He would hum and sing out the sound effects or music in the game and truly immersed himself in the environment. Comments were made by Brian during gameplay sessions, were mostly about his dissatisfaction on the Wii Mote controller.

Once Brian was satisfied playing the Nintendo Wii on the big screen, he tried playing MarioKart on the Nintendo Ds (Small screen). Here, he was more comfortable with the controller as he commented *“I’m an old school gamer, I’m used to using joy stick and arrow pads”*. It was observed that even on the small screen, he was still the same talkative gamer, and motivated to try again until he won. However, he was quieter and did not scream or laugh much, but he did smile throughout the game. Even using a handheld console he still sat up on the sofa, while concentrating and focusing on the screen. Brian did find that when playing on the Nintendo Ds it was easier to win the race. However, Brian concluded at the end of the game that he preferred playing this game on the big screen. *“The bigger the screen the better it is. Usually game created for the big screen has better features and better screen view”*. Brian was among the gamers that came to the SGE more than 7 times to play and try out games.

Education Game (Big Brain Academy Wii and Big Brain Academy DS) Single Player [Brian]

During another session, Brian came again to the SGE to try the Big Brain Academy game. He was really familiar and comfortable with the environment since this was his fourth visit. Once the game was set up, and instruction was given on how to use the Wii Mote for this particular game. Brian sat comfortably but still leaning forward. He began the game by being a bit annoyed with the professor character of the game taking too long to introduce the game without offering a skip option. After the instruction and settings were given, Brian tried the question. During playing the game and answering the questions he was quieter than he usually was. He did laugh and bite his fingers when he made mistakes in answering the questions. Brian showed full concentration during the quiz sessions. After finishing all of the questions in the game, he was really anticipating the grade that he would get and laughed when he got a C. He asked to try again stating that the first time was only a trial run and to get familiar with the game. He started the next session with ease. He did not find any problem with the Wii Mote for this game. He did comment that the game was a bit boring and he would not play the game at home or buy it for himself.

The next session was using the Nintendo Ds. Here, Brian was really serious, focusing hard on the screen. Not making a noise, just small “ish” and “aah” when he made mistakes. Some of the questions in this game were a bit difficult to understand therefore he did make a few confused facial expressions. He was happy with the grade

that he got especially when it was higher than what he got playing the Nintendo Wii in the first sessions which was a C+. He commented that the game was more challenging on the Ds because it had a timer so he needed to think fast. He is more familiar with the controllers on the DS, which use a stylus and touch screen. He requested to try again for another session to try to improve the grade; however, he remained on the same grade.

Reflection on the Extrovert Gamers playing Mario Kart Wii and Ds

It is important to point out that Mario Kart was a game created for fun and competition. After observing the playing scenario of Alan, Brian and John as well as the other gamers that came to play the game, most extrovert gamers have the similar behaviour, and it really shows when playing on the big screen. Characteristics that made Mariokart Wii more enjoyable on the **big screen** from an Extrovert gamers perspective.

- 1) An extrovert gamer prefers to play a game that provides a lot of social interaction.
- 2) During a single player game, an extrovert gamer shows more excitement when there is an audience watching him/her play the game.
- 3) During a single player game, an extrovert gamer is encouraged by cheers, or even heckling during the gameplay sessions.
- 4) During a single player game, an extrovert gamer feels more satisfied when he/she is able to express his/her emotion, talk and laugh.
- 5) During multiplayer gaming, an extrovert gamer would prefer to see his/her opponent's screen to increase the competition and social interaction.

Reflection on the Extrovert Gamers playing Education Game Big Brain Academy Wii and Ds

After observing Brian (extrovert gamer), there was not much difference in the preference of playing the game on the big screen or small screen. Brian was not affected by the screen in terms of his enjoyment of playing this game. He had the same motivation in playing the game to improve himself and his reaction to the gameplay was the same. However, he did comment that it was a bit more fun playing on the big screen, if there is a friend around. He also said that the game was more challenging on the small screen because of the timer feature in the game. He also preferred the multiplayer sessions of the game; however a comparison with a small screen could not be assessed due to some technical issues with playing multiplayer using the DS for this game.

Based on the observation of Brian and a few other extrovert gamers that tried Big Brain Academy on the Wii and the DS, the conclusion of playing educational games on the Wii and the DS are;

- 1) As long as the level of challenge is appropriate, the screen size does not give a big impact to an extrovert gamer.
- 2) The interactivity of the big screen in terms of graphics and controller can make the game session more fun for an extrovert gamer.
- 3) Having an audience and competing with another player is more enjoyable and motivating to an extrovert gamer when playing educational game. This is more feasible on the big screen.

An Example Participant Observation Sessions with Fred (Introvert Gamers)

Single player session playing Mariokart Wii and Mariokart Ds.

Fred is used to playing computer games and the PS3. He usually prefers playing games alone and games that require a lot of thinking, such as strategy games.

The session started as usual by introducing the players to the process, reading the information sheet and signing the consent form. Fred mentioned that he would prefer the room to be darker, thus the lights were switched off in the gaming section of the room. He commented that when playing games, the darker the room was the better, as you get more immersed in the game. We started the session by playing Mario Kart Wii. Fred was not familiar with the Wii so some instruction needed to be given. There were a few traits and behaviours that would differentiate Fred as an introvert gamer compared to the other gamers who were extroverts. He was really quiet throughout the game, mainly concentrating on the game. Expression of emotion was minimal and conversation with the researcher was more about asking for instructions. During the game, he was also very serious, analysing and thinking about how to play the game and what strategy to use to win, he mumbled to himself a lot. He did however still have an occasional sigh and curse during gameplay when mistakes were made. He commented that he was still not used to the Wii; however, that the controller was comfortable.

The next session was while playing the MariokartDS, he seemed more comfortable playing on the DS and more focussed on the gameplay. He seemed satisfied, that he could concentrate better on the Nintendo DS. He was in his own world. *“It is also easier to win when playing on the Nintendo DS because you tend to focus on the screen and not get distracted by other elements”*. Again, during gameplay, his expression was serious and constant during gameplay.

Single player sessions playing the education game (Big Brain Academy Wii and Big Brain Academy DS)

When Fred began the Big Brain Academy game session he calmly answered the questions in the game. He sat forward at the edge of the seat, fully concentrating on answering the questions. He was very serious and quite. His facial expression seemed to indicate deep thought. He had no change in expression and no comments or sound

throughout the session; however, at the end of the session he laughed a bit about the results of the test, which was a C.

He tried another session of the game. He still sat at the same position and had the same reaction to the game. Fred appeared to be thinking and made no reaction to mistakes that he made during the game. Sometimes, he mumbled to himself while calculating. He had no reaction to other gamers watching him play the game. He did shake his head once when he made one wrong answer. He was concentrating on the game. He laughed when he got the C grade again.

Reflection on Introvert gamers and screen sizes.

During the observations, a few gamers can be categorized as introvert gamers. They were more reserved and quiet during gameplay and rather enjoy their own space. They prefer to think and construct their gaming strategy. During the observation and conversation with these gamers, a few results were derived that indicated that introvert gamers prefer the use of a small screen device, or at least a personal screen, when they are playing a game. Introvert gamers prefer playing games that allows them to learn the story, perfect the achievement rather than socialise. The reasons why introverts would prefer a smaller screen size are;

- 1) Introverts prefer their own personal space when playing game, this is usually provided when playing on their own screen or having a smaller screen.
- 2) Introverts might feel uncomfortable when people are looking at them playing the game.

I would prefer my own personal screen and playing the game without an audience. In this scenario, only playing the Nintendo Ds provided that. [Fred]

- 3) When playing an educational game, a small screen could be better for the introverts because it allows more concentration and focus as well providing no further distraction.

If I was to learn using an education game, I would prefer to do it on a smaller screen, having privacy and learning on my own personal screen. [Fred]

In my opinion, It would be better playing education on the smaller screen being that it have the advantage of small screen like being able to concentrate more and the touch screen. [Carl]

Conclusion

In this paper we studied the effect of screen size on gamer's behaviour when playing education and positive games. The results show that the preference of these screen sizes can depend on whether the gamer is an extrovert or an introvert. It was further indicated that positive and educational gaming for extroverts are preferred on a big screen whereas introvert gamers prefer a more private and personal space which can be provided on a smaller screen size. This research suggests that in using games as a

learning tool or in a classroom environment, it could be important to consider the type of games, games consoles and screen size that would support both extroverts and introverts learning and also their gaming styles.

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Teaching Values Using Creative Strategies: An Asian Perspective

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Introduction

In the academe, we know that a student has learned when there is a change in behavior. As educators, we constantly strive to impart knowledge to our students. We know, however, that it is not enough to just educate a person. Equally important is how that person relates to others. Educators hope that their students will be knowledge-able to make sense of the things and events that are happening around them, make critical (and even unpopular) choices, and have the courage to act out their decisions.

The education of children does not only rest on the school and teachers. Recent studies have shown that parents and the home environment are very critical in the formation of children. The parents are truly the equal partners of teachers and the school. No parent desires to have a child that is the bane of the society. Every parent hopes that his or her child will significantly contribute to the community and the society through their careers and stances. This drives parents to teach, discipline, correct, and empower their children at the home environment.

Teachers and parents therefore go hand in hand in the complete education of young people. With this in mind, certain questions beg to be asked. How can educators move from simply transferring knowledge to being effective classroom facilitators who empower students to discover new knowledge? How can educators evolve from just “talking about values” to becoming paragons of values? How can parents effectively reinforce the values witnessed by their children from their teachers at school? How can parents and teachers take advantage of their unique relationship so as to effectively educate young people?

The poet Dorothy Nolte in her poem “Children Learn What They Live” (1972) gives us an obvious but often overlooked idea:

If children live with criticism, they learn to condemn.
If children live with hostility, they learn to fight.
If children live with fear, they learn to be apprehensive.
If children live with pity, they learn to feel sorry for themselves.
If children live with ridicule, they learn to feel shy.
If children live with jealousy, they learn to feel envy.
If children live with shame, they learn to feel guilty.
If children live with encouragement, they learn confidence.
If children live with tolerance, they learn patience.
If children live with praise, they learn appreciation.
If children live with acceptance, they learn to love.
If children live with approval, they learn to like themselves.
If children live with recognition, they learn it is good to have a goal.
If children live with sharing, they learn generosity.
If children live with honesty, they learn truthfulness.
If children live with fairness, they learn justice.
If children live with kindness and consideration, they learn respect.
If children live with security, they learn to have faith in themselves and in those about them.
If children live with friendliness, they learn the world is a nice place in which to live.

A very important aspect of education and formation is the ‘learning experience.’ By learning experience we mean the whole array of the learning process. We do not just refer to specific strategies, motivations, or one-shot outreach activities. We include in the learning experience all the factors that contribute to the education of the child. It is a tall order considering that there are numerous variables beyond our control. However, it is also empowering for we take responsibility and act upon those things that we can control. We then consider those things within our power and circle of influence for we know that they significantly impact the education of our children. We can take advantage of significant learning experiences by asking “How can this event or situation be a learning opportunity for my students?” “What values can I impart to my students through this learning experience?” and “How will this learning experience affect the complete education of my students?”

The Learning Experience: Goal, Agents, and Tools

Stephen Covey, author of *Seven Habits of Highly Effective People* and an expert on leadership, said that we must “begin with the end in mind.” That is, prior to executing our plan of action, we should have drawn first our desired goals or outcomes. It is only in this context that all subsequent actions become purposeful. The education that we provide and the learning experiences that we immerse our students in should be toward the formation and production of responsible, value-laden, and God-fearing people. It is safe to say that no educator or parent would want to see a knowledge laden young person turn into a dishonest, disrespectful, and selfish adult.

Rath *et al* (1996) noted that “several kinds of problems children often exhibit in school and at home are caused by a lack of values.” While this might seem like an obvious conclusion, what cannot be denied is the reality that teachers and parents (the agents of a child’s complete education), constantly face difficult challenges in the arena of value formation. Sometimes, a very intelligent child turns into a nuisance of society. As agents of positive change, we need knowledge that will help us clearly identify our educational goals as well as gain the tools that will help us attain those goals.

Understanding Values

We consider something as important when it has great significance, value, or consequence. How do values then become important in our lives? There are many definitions of values: “A value is a belief upon which one acts by preference” (Allport, 1950); “A value is a conception, explicit or implicit of the desirable which influences the selection from available modes, means, and ends of action (Kluckhohn, 1951); and “A value is the object of a positive attitude” (Bulatao, 1961). While the terms used in the definitions differ, there appears to be an agreement that values influence behavior. Values therefore are important in our lives because of their intimate link and impact to our behavior. Bulatao (1961) declares “our values colour our human acts and are reflected in every product of our human soul.”

Our lives are shaped by those who loved us, and by those who refuse to love us (Powell, 1975). Undeniably, we are moulded by the people whom we have related with. Our personal relationships (family, friends, teachers, neighbors) and the social

consciousness have significant contributions in our thinking processes, behavior, decision-making, preferences, and value system.

It is in our human interactions that we are able to witness first-hand and imbibe the correct (and incorrect) behavior-responses to life events. From these learned behavior-responses we draw out our preferred actions which in turn become guides for our behavior.

Our derived values (values adopted from the people who have significantly influenced us) and chosen values (those which upon our personal experience and introspection have found to be correct and true and thus have committed ourselves to) explicitly tell us who we are as a person and pervades our human life.

Understandably, values can change and be modified depending on the person's experiences, influences, and life stage. Values can also be appreciated as standards used in making a decision (Lynch, 1961). For example, a child who grows up in a rural locality may form new set of values once relocated to an urban setting. This is because values differ between family and generations, regions and cultures.

Each person develops a unique set of values. This assertion rests on the unique life experiences, influences, fulfilment of basic needs (food, shelter, security etc.), and people in a person's life. However, all unique values can be grouped into categories.

According to Kim (2010), there are 4 common Asian values that exist, namely: familism, communalism, authority and emphasis on education.

Singh (2009) identifies 6 sets of values inherent to a person. These values are captured basically from the various influences in the living spaces of a human person. These values are individualistic, family, professional, national, moral, and spiritual values.

- A. Individualistic values refer to the inborn value of self-preservation. This means that a person's well-being is of utmost importance. Every child starts with individualistic values. It is in the nature of a child to want everything for himself or herself and that everyone surrounding him (or her) are meant to serve his (or her) needs. These individualistic values can be considered as the most basic set of values.
- B. Family values refer to values that stems forth from a person's relationship with his or her family. The family, which is the basic unit of the society, pervades the value system of a person with reference to closeness and solidarity, politeness, hospitality, and gratitude.

The family nurtures each individual in the best possible way that they know. In a family system, each member performs complementary functions in order to help each other succeed as a person. The parents ensure the continuity of the value and tradition they have as a family. It is important to take into consideration that both the mother and the father carries with them different values and it is crucial to teach the right values to their children. Singh wrote:

“In the family system, the interest of each member of the family is protected through an unwritten law as love and trust alone governs the management of a family. The entire system of family value is maintained by tradition and trust. However, when

family values are strong, it results in the reduction of individual freedom and decline in the individual values. Every person has to think for the family first and the self as secondary.”

- C. Professional values refer to the values acquired from the different organizations and workplaces in the society. Man develops a set of values from the practice of his or her profession. It is very important to understand that each profession has its own set of values which sometimes contradict the values of another profession. Yet, these values are necessary to keep the professionals united and working together for the common good. An example of contradicting professional values will be the appreciation for human life from an educator’s point of view against that of a law enforcer. While teachers will never promote the killing of a person, a police officer will readily take a man’s life given the necessary circumstances. Professional values may differ but it actualizes the mission and responsibility of each person in the society.
- D. National values are commonly codified in the national laws of a particular country. These laws seek to grant equality and justice to all its citizens. The national values are appropriated in order to protect the citizens by particularly emphasizing their rights and privileges as persons. At the same time, each individual is tasked to love their country as a sign solidarity and patriotism. It is also important to take note that human values have a social aspect. We are all responsible for one another (Gorospe, 2011).
- E. Moral and Spiritual values are ethical values which are naturally developed in each individual because we are created with dignity and respect for life. Every person desires to be loved and be respected by other people in the society. The natural tendency to love and respect others moves us to practice these values. In addition, the belief of each individual to a Supreme Being calls us to believe that we have a higher purpose on earth that each creature is created with a purpose and that is to love and to share the beauty of life bestowed to us by God.

Hence, upon knowing the different sets of values that a person develops over time in his life, it is important to acknowledge that in order to understand a person, one should know and therefore understand his beliefs and values. Each individual is formed by the different sets of values. Thus each person sees things according to their own belief and values (Thomlinson, 1953). Trying to find a common area of good understanding will help two individuals create an excellent dialogue and open communication.

Values Education

In an attempt to respond to this challenge, a good number of schools have already reviewed their curriculum and integrated values in subject areas. Value integration is a commendable move to address the dichotomy between belief and practice.

Robb (1988) defines values education as “an activity which can take place in any organization during which people are assisted by others, who may be older, in authority or more experienced, to make explicit those values underlying their own

behavior, to assess the effectiveness of these values and associated behavior for their own and others' long term well-being and to reflect on and acquire other values and behavior which they themselves realize are more effective for long term well-being of self and others.”

Values education is therefore a process by which a mature adult assists learners to discover, choose, and act with the goal of attaining one's personal well-being as well as that of the society. It must be made clear however that values education is not indoctrination. In fact a successful values education program should develop critically-minded persons who are able to synthesize, see connections, evaluate arguments and then decide on the proper course of action. In continuously choosing what is right and moral, the young person's actions develop into good habits which then become the pillars of appropriate values.

There are many agents of values education. Parents act as primary agents of values education. Vatican II asserts the family as the domestic Church which “inculcates religious beliefs, attitudes, morals, and social conscience.” Monera and Marco (2006) add that the “modelling of parents are indispensable. The parents, in their most fundamental function, are expected to safeguard, reproduce, and transmit religious and cultural values.”

In partnership with the parents, school teachers (in loco parentis) also carry the immense responsibility of forming young people to become value-laden productive citizens of the society. Newman and Blehl (1963) even go to the extent of describing an ideal education as “almost prophetic in its knowledge of history; it is almost heart-searching from its knowledge of human nature; it has almost supernatural charity from its freedom from littleness and prejudice; it has almost the repose of faith because nothing can startle it; it has almost the beauty and harmony of heavenly contemplation, so intimate is with the eternal order of things and the music of the spheres.”

Teaching is a never-ending quest of helping learners achieve knowledge, skills and values. Hence, teachers should be the first one to model good behavior in and out of the school.

Teachers are the best visual aid inside the classroom. Zulueta & Guimbatan (2002) share the following desirable characteristics of a teacher:

- Emotionally stable and with sound mental health
- Good physical health and dynamic personality
- Creativity, resourcefulness and good countenance
- Good grooming, good example in word and actions
- Has positive outlook in life
- Friendly and sociable
- Firm yet has democratic leadership
- Encouraging attitude and morally upright

The Need for Values Education

It is very common (and understandable) for teachers to appreciate values education as a tool to lessen or even eradicate behavior problems among students. However, values education can be elevated to a much higher purpose. Through values education, we

empower students and help them address properly their personal problems even after they have already left school. Dagmang (2007) explains that “students, when faced with personal problems, usually go to familiar sources and non-traditional supports such as popularized books, magazines, journals, friends, tv, internet, and some professionals.” An effective values education program however will make the student draw out from himself (or herself) the necessary skills, tools, and solutions to his or her problems.

Values education will be futile if it ends with just the empowerment of the person to solve his (or her) personal or private matters. It should also be seen as a powerful tool to move the young (who will also be adults soon) to look and respond to the more serious aspects of life and the many ills that plague the society. The world of the workplace, governments, arenas of power and other human exploits have brought numerous social ills of which we are challenged to identify, correct, and fight against. Values education and the teacher must make the students discover that there is a way to make this world a better place. Values education can be a tool in the dialectical process of finding solutions to social ills where opposing orientations are appreciated in their mutual interactions toward advancement or growth.

To teach values in these post-modern times is a necessity. If teachers are to form upright persons who are actively involved in social change then they must rise up to the challenge of becoming paragons of virtue.

The Youth Today

There used to be a time (not that long ago) that only business establishments, government institutions, the middle class, and those belonging to a higher social class have telephones.

There was a time when research meant going to the library, looking at the card catalogues, copying pages from books and typing the research paper using a typewriter. Now, research is synonymous with Google which is one of the leading search engines in the World Wide Web. Type the word and in as fast as 2 seconds you can have as much as a million results for your query. One can download the research material and use it for the research paper. The final paper can then be sent to the professor through e-mail. Some professors even check the paper using the “review” function of Microsoft Word and return the corrected paper to the student via e-mail. To protect the document, one can always convert it to “.pdf” or “portable document format.”

Also, not too long ago, watching movies meant going to the theatre or buying a dvd. Now, one can download movies and depending on the speed of internet connection, watch the movie after just a few minutes on the computer, “tablet”, smartphone, or even portable gaming machines such as “Portable PlayStation (PSP)” or “Nintendo Dual Screen (DS)”

A few years ago, tv meant television where you can watch your favorite programs strewn with a few dozen commercials. Now, there are television models that also serve as computer monitors complete with internet capabilities. Now, there are television models that uses “motion sensor” which virtually eradicate the remote control.

Modernization, globalization and technology have changed the meaning of words. Take for example the words “net” (not just something that is used to catch fish but can also refer to the internet), “web” (not just the silk that comes out of a spider but can also refer to the world wide web), phone (used to be understood as a landline but now refers to cellular phone) and load (not just weight or cargo but also the amount that you can use for calls or texts using your cellular phone). New words have also entered our vocabulary like download, upload, tweet, blog, hashtag and many others. Vis-a vis the change in the meaning of certain words are changes in certain aspects of our post-modern culture.

While modernization, globalization and technology have made our lives easier, more interconnected, convenient, and enjoyable, they have also brought a host of problems that plague us.

It is common to see people who are “hanging-out” but not interacting because they are busy texting other people. “Copy-pasted” research papers of students are a common headache of teachers. Pirated movies and music proliferate. These are but some of the modern realities that we have to grapple with.

Monera and Marco (2006) have asserted that the young, influenced by modernization, secularization, and globalization, have drifted away or have become indifferent to traditional moral teachings. Their finding is in consonance with the view of Dagmang (2007) who said that “the young have more familiarity with the world of spending and consumption (shopping, malling, e-commerce), play (PSP, cellphone, iPod, iPad), and spontaneous self-searching (through Facebook, Twitter, YM).”

There are numerous intervening factors that strengthen or weaken the value system of a young individual. It is important to note, however, that the Youth Adult Fertility and Sexuality Survey (YAPS-II) have concluded that “adolescents manifests his (or her) processing reaction to the intervening factors in terms of the beliefs, attitudes, values, and morals he (or she) eventually holds in a given period in his (or her) life.” This means that teachers are all the more needed to “step into the picture” and become living witnesses in the critical stage of adolescence. Monera and Marco (2006) explained that teachers must challenge student’s critical thinking for evaluating claims and counterclaims about beliefs, values, and morally defensible actions to arrive at an informed conscience.

Teaching Strategies

In a game, coaches and players create strategies and anticipate the competition’s moves by crafting counter-strategies. In military warfare, strategy takes prominence for it spells the difference between saving and losing thousands of lives. In education, strategy has an altruistic function: to make sure that students learn the material and gain knowledge. Teaching strategy, unlike the strategy in games or war where the proponent is the beneficiary, focuses on the success of the recipient (i.e. students).

Let us use the following story to elucidate further the importance of teaching strategy:

Once there was a man who bought a king-sized bed. When he arrived home, he discovered that he cannot get the bed into the house for it was seven feet long and his door was only three feet wide. The man was frustrated and called a friend for help. His friend told him, “You just got your numbers wrong my friend, you see, your bed is only five feet wide but your door is six feet tall. If you try to get it into the house this way, it will surely fit.”

A teaching strategy will never compromise a material to “fit” into the minds of students. Instead, it is a tool that facilitates teaching and learning. It involves creativity so that educators can look at things in a different light, to think outside the box, and to change paradigms. More than anything, teaching strategies call for courage for not all strategies brings out the desired results.

Types of Spaces for Learning

We have established that each student inside a classroom learns differently from one another. There are learners who will best learn through games while others through lectures and individual reflections. Therefore, we also have to recognize that learning spaces are very important in the acquisition of knowledge of the learners.

There are two types of spaces for learning: 1) formal and 2) informal. Formal instruction spaces are embodied in classrooms or lecture when direct instruction is required. Formal instruction includes lecture, discussion, question-and-answer, and lecture-demonstration. On the other hand, informal instruction spaces refer to laboratories, field, playground, exposure trip, games and the like. In informal instruction spaces, unstructured activities are made present so that the learners who learn best through games, role plays and field trips.

A Survey on What Teaching Strategy a Student Learn Values Best

In order to find a balanced and well-founded answer to the question: In what teaching strategy do students learn best? The researcher conducted a survey using a cluster sampling, with 120 students coming from a private tertiary institution. The student-participants are between 17-20 years old. are composed of Filipino (50%), Chinese (30%), Japanese (12%), and other Asian nationality (8%). In the survey, the students were asked to rank 10 teaching strategies which are commonly used by their teachers and where they would learn values best. They rank the following teaching strategies, 1 as the highest and 10 as the lowest:

1. Lecture
2. Group Discussion
3. Discussion by partner
4. Film viewing
5. Group project
6. Reflection paper
7. Written exams
8. Recitation
9. Video making
10. Community service

In the survey, it shows that lecture is still the most effective strategy in teaching values to students. It is where the students learn positive qualities based from the concepts and experiences shared by the teacher. The teacher may use other medium like presentation, stories, hand-outs, pictures and others. But how a teacher deliver the content matters most in bringing about the values to be conveyed to the students.

The second most effective strategy is the group discussion. It is where the students express their insights with 3 to 5 group members. This activity makes a student comfortable in sharing ones ideals and thus comments on the thoughts of other members. Through the sharing ones experiences, the students learn values brought about by the experiences encountered by their group mates.

The third strategy is quite related to the second strategy. Discussion by partner allows the students to share their knowledge in a more intimate way. Instead of communicating ones ideas to a larger group, in this activity conveying ones message is received only by a person.

The fourth strategy requires a value laden film that focuses on the specific topic the teacher teaches. Value laden films reflect the practice of certain values in one's day-to-day living. Films may bring affirmation, doubt and inspiration to students.

Group project requires discussion among students but would focus not on the values but more on the tasks at hand. Values like camaraderie, responsibility and involvement may be learned implicitly.

Writing a reflection paper may bring out insights about one's own values. But this can also be a superficial way of looking at ones values. Submitting a reflection paper may be subjective for the reason that it is graded. Some students may write a beautiful reflection paper but the content may be flawed. Hence, this might be a good strategy but caution is necessary.

Written examination is another activity that has less impact to students in terms of learning values. The objective type of exam may be used by the school and teachers as a tool to measure the extent of learning inside the classroom. But this does not guarantee that a student learn much values in the class.

Moreover, recitation may bring out what the teacher would want to hear from students but this may not guarantee the authentic learning of students. This could be used as a means to gauge the students' understanding of the topic by asking the students to summarize the lessons learned from the discussion and lecture.

Second to the last is video making. This may be a good practical activity but learning values from video making may not be deliberately achieved. Video making with group mates may focus more on the technical skills and less on the affective skills.

Lastly is community service. It was a surprise to find out that community service or program is the least strategy where students will learn values. According to the survey, students find it a bit useful because it is sometimes disconnected with their own experiences as students. Likewise, they find community service challenging

and hard that's why this strategy is unpopular for them. Having a low score for community service can make teachers more aware on how they process the activity.

Proposed Framework for Teaching Values

Values education is a necessary tool in order to promote positive values to the young generation and hence preserve our cultural values. Relating all the discussions made and the teaching strategy survey, the researcher made a proposed VIRTUE framework in order to fully develop the values formation among the young.

Virtue is the habit of doing good. This is necessary to form positive behavior. The proposed VIRTUE framework aims to help the students to develop good habits and thus encourage them to practice the virtues. It is composed of different sections that will utilize the teaching and learning experience in the classroom and thus imbibe positive values amongst students.

VIRTUE Framework

Victories of Life: This section introduces the lesson or values to be discussed by giving examples of life's triumphs and by practicing the featured virtue/s. This is the human experience.

Inflame: This part processes the human experiences by explaining the victory of life. The teacher will encourage the students to discuss among groups or partners how experience success and victories in life.

Rediscover: This includes the theories and content of the lesson. The teacher may use medium and other strategies in laying down the lesson. But the teacher must be able to process the lesson very well and relate it to the students' experiences in order for it to be meaningful

Trivia: This includes some trivia about the virtue/s (eg. Etymology). This will make the lesson more interesting and fun.

Uplifting Realizations: Things to remember, realizations, scenarios and challenges where the realizations can be applied. This will include graphic organizer to summarize the lesson. Reflection and group discussions may be used to deepen the students' understanding

Engagement: Evaluation and activities to process the lesson which includes UbD assessment tools.

Conclusion: To Teach Values is to Respond to a Call

A man was watching news on primetime television when his five-year old son quipped, "Father, I don't want you to watch news anymore."

The father was surprised and asked the little boy, “Why don’t you like the news?”

The little boy said, “Because it has nothing but death and violence.”

The father immediately turned off the television.

The five year old boy brought to light what most adults have missed. Our world is filled with death and violence and we are thriving in a “culture of death.” However, there is hope. We are called to respond and rise up to the challenge. Educators are given the immense power and responsibility to shape the hearts and minds of young people. Educators must therefore do their ordinary duties extraordinarily well.

Educators must have that burning desire to create positive change, among students and the society, no matter how insignificant it may seem. In fact, most teachers might not even see the fruits of their labor in their lifetime. Yet, their consolation is that perhaps, they have inspired their students. As what Arthur William Ward said, “The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires.”

To teach values is to respond to the crisis of apparent normalcy in these post-modern times. Globalization, secularization and modernization have made the young drift away from values, principles and beliefs and indifferent to traditional moral teachings. Educators acknowledge that this “drifting away and indifference” of the young is a crisis, that if not addressed, can soon lead to social collapse. Joan Chittister (2005) succinctly tells us:

“The situation [that leads to social collapse] is always more than obvious: when underneath the regular institutional rhythms, schedules, events and organizational rituals, the tectonic plates of the system – membership, credibility, relevance, purpose, and public effectiveness - are straining and creaking beyond any reasonable degree of structural tolerance, that enterprise is in danger, if not of extinction, at very least of cultural sclerosis. Then that system is in the midst of critical change – quiet, unobtrusive, cloaked as it may be – which it may or may not survive but will surely not survive unchanged.

Put plainly, Chittister (2005) explains that a society that does not acknowledge and respond to the seemingly mundane problems shall soon suffer critical change. Hence, educators must seriously take the challenge to teach values and assist the Filipino youth in the formation of an informed conscience.

To Teach Effectively is to Have a Loving Heart

A young teacher graduated with honors from a reputable school. He has passed the licensure examination for teachers and was immediately hired by an exclusive private Catholic school to teach Christian Living Education to first year high school students. It seemed that everything was going well for him. Not until the very first day of school that reality set in. He suffered a horrible time: The students challenged him, he cannot control the class, everyone was noisy, and his lesson plan was not put into action. What went wrong? He knew the theories and strategies but he lacked “experience.”

The young teacher then decided to be better and sought a mentor. He shared his difficulties to his very understanding CLE Coordinator who guided him and shared to him not just techniques but an invaluable advice: “Love your students,” the CLE coordinator said. “It makes all the difference.”

Great teachers love their students. This love is manifested in preparing lessons well, handling student misbehaviours, providing opportunities for student success, engaging the students in the learning process and so on. To teach effectively, an educator needs the right skills and tools. However, more than anything, he or she needs a big heart. St. Francis of Sales sums it up in saying, “You catch more flies with a spoonful of honey than a barrel full of vinegar. In other words: Love (like sweet honey) is a very important aspect of education.

To Teach Values is to Plant Seeds

Educators who labour long and hard toward the realization of the kingdom of God can draw inspiration from the gospel of Mark (4:26-29): Jesus also said, “In the kingdom of God it is like this: a man scatters seed upon the soil. Whether he is asleep or awake, be it day or night, the seed sprouts and grows, he knows not how. The soil produces of itself: first the blade, then the ear, then the full grain in the ear. And when it is ripe for harvesting, they take the sickle for the cutting: the time for the harvest has come.” Our daily efforts to form the hearts and minds of our students shall not be in vain. The lessons that we have imparted to them will be the seeds of change. It is our hope that when we come face to face with our Creator, we can also say the words of St. Paul “As for me, I am already poured out as a libation, and the moment of my departure has come. I have fought the good fight, I have finished the race, I have kept the faith. Now there is laid up for me the crown of righteousness with which the Lord, the just judge, will reward me on that day; and not only me, but all those who have longed for his glorious coming (2Tim 4:6-8).

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Criteria for the Selection of Open Source Software (OSS) and its Applications in E-learning; Development and Continuous Education Centre, Baghdad University

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Abstract:

The Open Source Software (OSS) today is one of the most important solutions in the e- learning environment for its possibility of the use as an alternative to proprietary systems in the Critical educational environment.

The study aimed to develop the adaptive performance of Learning Management System Through the integration of more than Open Source Software(OSSs) Subject to standards, In order to achieve a healthy learning environment contribute to overcome the obstacles in front of students and teachers.

Development and Continuous Education Centre (DCEC) at Baghdad University provide a Criteria for the selection of OSSs, by identify correct requirements for the software to be developed, draw a candidate index, establish assessment criteria, and then consequently present a method to select OSSs , by designing its el-Moodle (www.dcecuob.dcec-vc.com Moodle) to provide development of learning tools easy to use , and to insure that the suitability of this development to the adaptive performance, we used eldcec Moodle coordinating with (3) Colleges and Institutions, to increases the educational quality at Baghdad University.

The DCEC E-Learning vision:

The DCEC used e-learning to:

1. Improve student learning experience,
2. Enhance the performance of educational administration,
3. Support the teaching and learning process;
4. and to Create a study environment with flexible and easy by focusing on the learners needs in order to achieve the goals of quality for Baghdad university environment education.

Introduction:

E-learning does not mean the replacement of traditional teaching methods, but it is designed to support the learning process with flexible tools and to find modern learning environment, able to use the set of techniques designed to engage students' learning process and make the student is the Centre of the educational process, With the right and suitable Open Source Software (OSS) will achieve to successful education.

DCEC worked on Selection Criteria for OSSs, Concerns to its features and Attributes by considering to ISO Standard Compared to the compatibility with other programs of Open Source Software for enterprise requirements and needs, and prepared a list of all OSS which is having its flexibilities, characteristic and proposed an additional quality that is the internal constraint which should also be considered when making any decision on OSS adoption.

The research Aim:

The study aimed to develop the adaptive performance of a Learning Management System, through the integration of more than Open Source Software (OSSs), and the (Moodle) is one of the open source, which was adopted in e-learning in the Development Center has been certified for readiness and scalable development and Modulation in order to achieve a healthy learning environment contribute to overcome the obstacles in front of the students and teachers at University of Baghdad.

Case Study:

Development and Continuing Education Centre (DCEC) at University of Baghdad provides:

- 1- Criteria for the selection of OSSs, by identify correct requirements for the software to be developed,
- 2- Specifications of the added features to the original OSS (Moodle), and
- 3- Then consequently present designing and implementing, of the proposed E-learning-package (www.eldcec.uobaghdad.edu.iq).

Pr-Studies:

1. A Quality Model for Open Source Software Selection . Authors: Sung, Won Jun --- Kim, Ji Hyeok --- Rhew, Sung Yul. Journal: Sixth International Conference on Advanced Language Processing and Web Information Technology (ALPIT 2007) **Year:** 2007 **Pages:** 515-519 **Provider:** IEEE **Publisher:** IEEE **DOI:** 10.1109/ALPIT.2007.81(IVSL).

Although the need for developing software using Open Source Software(OSS) has been increasing, there is no measurement to select a suitable and qualified OSS which

is proper property to develop. In this study, it is suggested whom wants to develop software by using OSS that a quality model to choose the best quality which is suitable characteristics of development. To conduct the proposal quality model: 1. Select 23 development companies which have experience in developing software with OSS. 2. Sample among the 23 companies which has ISO/IEC 9126 certification and additional characteristics by the order of priority 3. From top-15 sub-characteristics, group, combine and classify by characteristics. Finally, we arrive at the quality model abstracted from 4 main-characteristics and 10 sub-characteristics. The quality model provides the criteria for measuring quality to select OSS and fundamental researching metrics and indicates the applicable method for practical and basic information.

2. OSS Implementation in Utility Applications. **Authors:** Edwin Liu --- Jenny Zhou -- - Pam Chen --- Ebby Dabiri . **Journal:** 2007 IEEE Power Engineering Society General Meeting **ISSN:** 19325517 **ISBN:** 142441296X **Year:** 2007 **Pages:** 1-1 **Provider:** IEEE **Publisher:** IEEE **DOI:** 10.1109/PES.2007.386056.

Open source software has risen to great prominence recently. It has become an attractive alternative to software developers in different fields, including electric energy professionals. Software released under an open source license is freely distributed with its source code, enabling users to use, copy, distribute, examine, modify and improve it to meet their needs - without having to pay royalties to previous developers. In this presentation, we will discuss general background of open source software development and the current open source software revolution. Two real-world web-based implementations using open source software components are presented: (i) the firm transmission right auction system used by California ISO before its new nodal market is established, and (ii) the database application used by utilities to track the performance and accounting of their energy efficiency programs.

What's the Open source software (OSS):

Open source software is free software: it refers to software that allows Source Code which can be modified freely and Redistribution.

The application of open source software is use for users of permits on the freedom of access:

1. Run the program for different purposes.
2. To study how the program works and adapts it to the needs of its users.
3. Redistribution of Multiple Copies.
4. Improving the program.
5. Rights and duties.
6. No one owned by, No Fess imposed upon redistribution.
7. Free production of software derived or modified from the original program or Original Version.
8. Non - discrimination between people and groups in the license.
9. The license must be applied to each program and each of its components.
10. The license must not restrict other programs, whether open source or closed together.
11. All rights reserved must be applied to / with the re- production versions.

What's selection criteria for Open source software

There is no measurement for selecting a suitable and qualified (OSS) which is proper property to develop. But we tried to prefer to three important dimensions can help in our Moodle: system quality, information quality and service quality which tailored to the criteria build a modern environment e-learn.

Khadijah Chamili, Yusmadi Yah Jusoh Study [1] try to list all possible OSS characteristic which related to ISO standard for comparison, better understanding and future enhancement for other researchers. and also proposed an additional quality characteristic that is the internal constraint which should also be considered when making any decision on OSS adoption. Hopefully the suggested selection criteria might help to build users confidence to any OSS product in future adoption.

Security in open source software:

Security has become an important aspect and an integral part of all the phases of any software development. The trustworthiness of any software, either open source or closed source, depends on certain key aspects of the product design and development. These include the expertise and dedication of the developers to develop a secure product, quality of tools used in development, the level of testing carried out before releasing the product and the matured practices followed throughout the development cycle.

1. Development and Continuing Education Centre Criteria for the selecting OSSs,

Our Criteria for the selection of OSS, for its:

1. **Flexibility of interface:** Version Compatibility, Architecture Stability, Developers' Support.
2. **Legality of Source Code:** Revisability of Source Code, Security Maturity.
3. **Easy for Training:** Functionalities Ease of Use. Ease to Upgrade and Installation.
4. **Adaptability:** Easy to integrate.

2. Added Features are those accomplish the requirements of adaptive e-learning Which are:

1. **macro-adaptive:** selecting a few components that define the general guidelines for the eLearning process, such as:
 - learning goals, or
 - levels of detail, and
 - mainly based on the student's profile.
2. **aptitude-treatment interaction:** proposing different types of instructions and/or different types of media for different students;

3. micro-adaptive: monitoring the learning behavior of the student while running specific tasks and adapting the instructional design afterwards, based on quantitative information;

4. constructivist-collaborative: focused on how the student actually learns while sharing knowledge and activities with others.

A modern system based on adaptation should consider all of them to provide a wide range of possibilities on eLearning.

3. To achieve the previous Criteria & Features DCEC :

1. Chooses Moodle the free Package (OSS) for:

- it's a good free architecture.
- well implemented,
- inter-operable.
- international.
- Easy to use
- and also has the strength of the community.

2. Adding the below features to the Moodle according to the users discipline:

- Iraqi virtual Science Library (IVSL).
- Video Conference availability through using Microsoft Lync.
- Open Course Ware of MIT.
- Movie Player and Scientific Movies databases (UoB Tube)

3. Constructing an IT infrastructure consists of:

- Hp Server for Moodle.
- Fujitsu Server for Lync.
- Dedicated Server for Open Course Ware.
- 24/7 (Days) un interrupt power supply.
- Dedicated Server for (UoB Tube),

4. Implementing the proposed package with:

- Al -Khwarizmi Engineering College.
- College of women for Science.
- Summer training Students of Institute of Technology.

What is dcecuob.dcec-vc.com Moodle:

The Moodle project is a kind of e-learning system that been used widely all over the world by universities, companies, institutions, schools, independent educators, and home schooling parents because of good architecture, implementation, inter-operability, and internationalization, and also has the strength of the community. it's a great potential for creating a successful e-learning experience by providing an abundance of excellent tools that can be used to enhance conventional classroom instruction in any e-learning system. It's free and its accessibility is average. it is

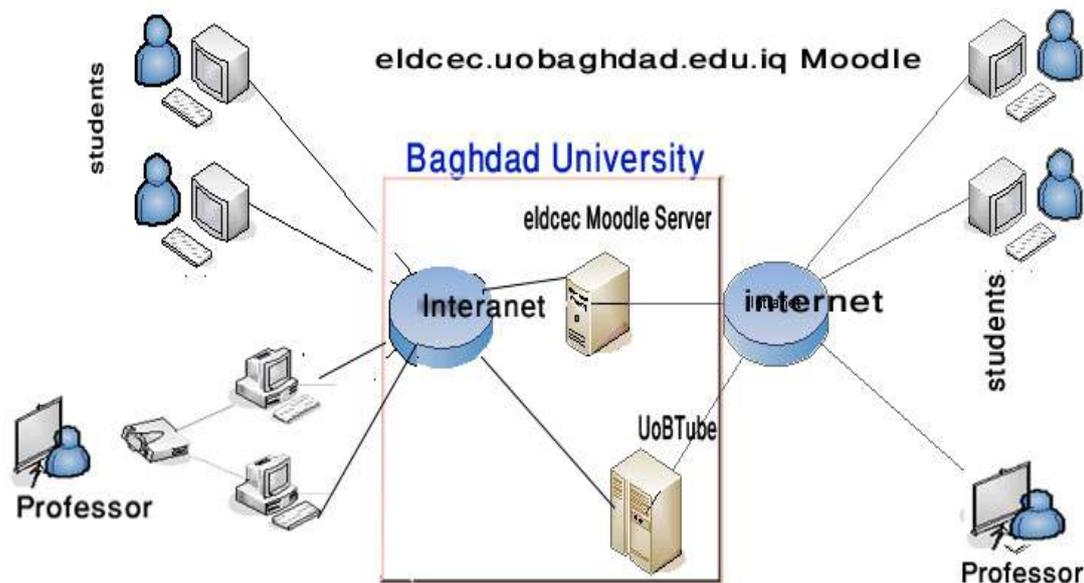
interest of educators and open source programmers in joining their efforts to improve the quality and reduce the cost of education, it's easy to use and had rich communication and collaboration tools. From developers' perspective, Moodle had more tools for the learning environment, and it is easy to incorporate multimedia elements and has a desired features.

The strengths of Moodle are the realization of communication tools the creation and administration of learning objects, the comprehensive didactical concepts and tracking of data. In addition, the outstanding usability of Moodle leads to the maximum evaluation value in the usability category concerning the other platforms.

Eldcec Moodle is an Open Source soft ware (OSS) designed and created by Development and Continuous Education Center at University of Baghdad since (2012/2014). It's a multimedia content for e-learning, ranging from the preparation of teaching materials until the distribution through different means (broadcast online, e-learning platforms, broadcast in local media such as (CD, DVD, etc..)) to the final user.

The first eldcec application Moodle , elected in collaboration with selective colleges at University of Baghdad, such as:

- Al-khwarizmi Engineering College, and
- The College of women for Science.



DCEC.UoBaghdad Moodle design Steps:

DCEC at UoB designed its Moodle by selecting more than one OSS by compact between them in order to supply it for students needs, and provide easy-to-find links to support services. Links for students to services, including administration, IVSL library, and other supportive services, need to be accessible to students and teachers

directly in a way not necessary on-campus. Links to these services prominently and consistently placed on every course page. Therefore, when considering a simplified interface, course developers, also consider the font size and placement of these links, such as:

1. ***OCW.MIT: open course ware mit:(www.ocw.mit)***
2. ***IVSL: Iraqi Virtual science library:(www.ivsl.org)***
3. ***You tube: (uobtube)***
4. ***Virtual disktop***



DCEC adopted "Open Course ware" as one of rehabilitation training Courses for teachers:

1. These lectures were used to illustrate the teachers' skills to develop their technical abilities by using the available methods to run and explain the possible techniques inside the classroom.
2. Using lectures to support and achieve school sections inside the Iraqi Colleges and Universities depending on the available techniques found in these usual in OCW terms.

The image shows a screenshot of a web browser window. The address bar contains the URL <http://5.10.234.54/iltcc/col/courses/category>. The page content is a slide with a yellow background. At the top, it reads "Guide for Teaching Methods from MIT Open Course Ware the link Below" and provides the URL <http://ocw.mit.edu/courses/biological-engineering/>. The slide features a diagram of a metabolic pathway with inputs like Acetate, Glucosylate, and O₂, and outputs like RFP and GFP. Below the diagram is a magnifying glass over a microarray and a photograph of pink and yellow bacterial cultures. At the bottom, there is a Microsoft Lync logo and the text "Join a Conference with your teachers over intranet with the link below using Microsoft Lync" and "Join Conference".

IVSL: Iraqi Virtual science library:(www.ivsl.org)

IVSL Project is the first of its kind and the most important sources in the Arab world. It's the gate to international publishing houses approved to the Iraqi researcher, and adopted by the Iraqi Ministry of Higher Education and Scientific Research to service the scientific research.

One crucial step toward bringing Iraqi researchers up to date – easy and safe access to scientific knowledge and developments has been taken, with the launch of the Iraqi Virtual Science Library (IVSL) in May. A broad public/private partnership led the way in building this digital library for Iraqi researchers, with participants from several U.S. government agencies, private companies, professional scientific associations, technology companies, scientific publishers and information providers.

The library is available to Iraqi universities, research institution and the Ministries of Higher Education and Science & Technology. IVSL provides nearly 80% of Iraq's scientists and university students with access to full text technical articles from major publishers, training, online educational materials, and information on funding opportunities- the same level of scientific content available at top-tier universities in the United States.

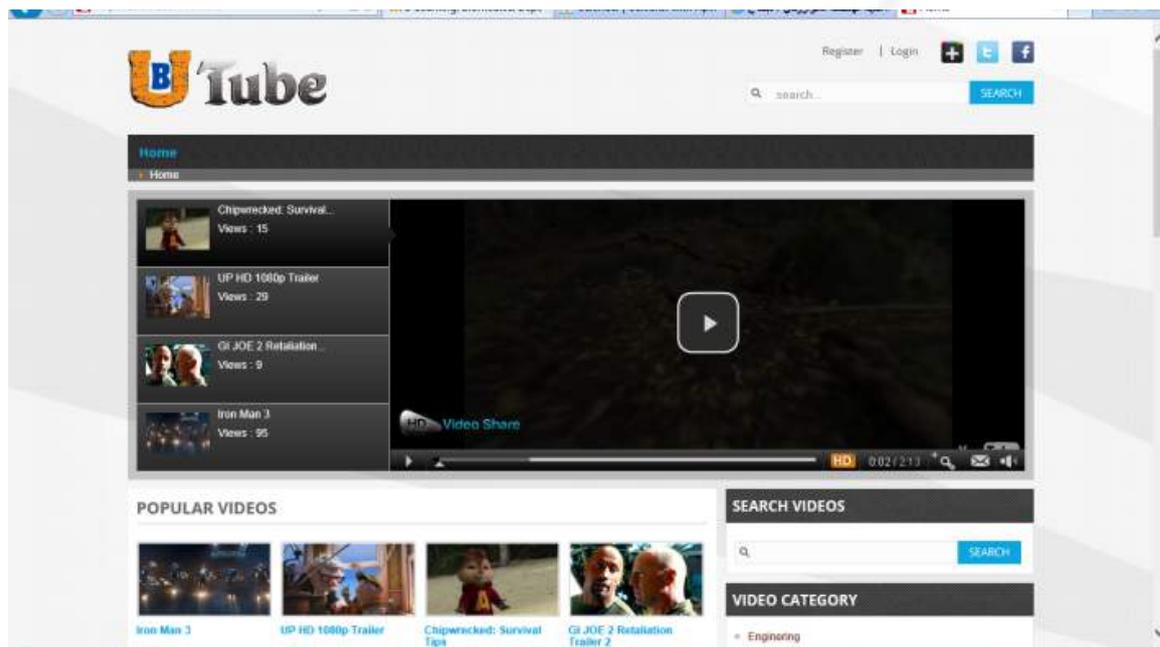
The Project Launched in January 2006, Search for sources of electronic information using the Virtual Library Iraqi scientific (IVSL: Iraqi Virtual Scientific Library) within the Global Partnership, in cooperation with ministries, associations, research centers and the role of international publishing provided by University of Baghdad faculty professors and researchers.

In eldcec moodle we tried to integrate the (IVSL) for both students and teachers, as a e-resources, by using subjects (fields) for each college to facilitate it for both,



You tube: (uotube)

A substantial number of assistive technologies and multimedia options have been integrated into Moodle modules such as; YouTube, ii is a video-sharing website, the UoBTube (uotube.dcec-vc.com) videos are available in a range of quality levels. The former names of standard quality (SQ), high quality (HQ) and high definition (HD) have been replaced by numerical values representing the vertical resolution of the video. The default video stream is encoded in H.264/MPEG-4 AVC format.



Training Course:

- DCEC prepared a test for the Students of Institute of Technology after a training course for using the eldcec Moodle features.
- The table [1] shows the final results of the assessment was used to evaluate the students.

The table [1]

Name	Time taken	Grade/10	1#	2#	3#	4#	5#	Feedback	College	○Abs
hiba mohammad	3 mins 40 secs	8	2	2	2	2	0	<p>v good</p>	Institute of Technology	B+
samar alaa	2 mins 5 secs	8	2	2	2	2	0	<p>v good</p>	Institute of Technology	B+
hadel hussen	2 mins 32 secs	6	2	2	2	0	0	<p>less good</p>	Institute of Technology	B
hawazen ali	2 mins 6 secs	8	2	2	2	0	2	<p>v good</p>	Institute of Technology	A
tayma mohamed	4 mins 42 secs	6	0	2	2	2	0	<p>less good</p>	Institute of Technology	A
mostafa esmael	2 mins 43 secs	8	2	2	2	2	0	<p>v good</p>	Institute of Technology	A+
revan mohamed	2 mins 46 secs	6	2	2	2	0	0	<p>less good</p>	Institute of Technology	A
rana abd	2 mins 30 secs	6	2	2	2	0	0	<p>less good</p>	Institute of Technology	C-
najwan badeia	3 mins 36 secs	6	2	2	2	0	0	<p>less good</p>	Institute of Technology	B+
mohaned salam	2 mins 36 secs	8	2	2	2	2	0	<p>v good</p>	Institute of Technology	A+

Recommendations:

Development and Continuous Education Center, Baghdad University has achieved development education programs, a large proportion of Aides in providing technological environment adopt OSSs in terms of quality and excellence and seeks to ensure continuity and sustainability of e-learning programs Recommendations for specific software programs should be flexible, forward thinking, and based on extensive research. Teachers must make a commitment to become personally competent in using technology in education. Teachers need to continually improve their technology skills by keeping up with new developments and exploring the further capabilities of available technology. Appropriate training and support opportunities should be available:

1. Improving the infrastructure for Baghdad University Colleges, according to their Suitable needs and requests
2. Add the possibility of virtual reality for the future works.
3. Training the Lecturers to prepare their lectures using the proposed packages.
4. Encourage students to use these packages as a support to their Lectures.
5. The recommendations emphasize the integration of pedagogical strategies and technical tools in eI- education in order to meet the diverse abilities, disabilities, and needs of learners more efficiently.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is surrounded by a large, faint, circular graphic element composed of two overlapping arcs: a red one on the left and a blue one on the right, creating a partial circle around the text.

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2014 upcoming events

March 27-30, 2014 - ACP2014 - The Fourth Asian Conference on Psychology and the Behavioral Sciences
March 27-30, 2014 - ACERP2014 - The Fourth Asian Conference on Ethics, Religion and Philosophy

April 3-6, 2014 - ACAH2014 - The Fifth Asian Conference on Arts and Humanities
April 3-6, 2014 - LibrAsia2013 - The Fourth Asian Conference on Literature and Librarianship

April 17-20, 2014 - ACLL2014 - The Fourth Asian Conference on Language Learning
April 17-20, 2014 - ACTC2014 - The Fourth Asian Conference on Technology in the Classroom

May 29 - June 1, 2014 - ACAS2014 - The Fourth Asian Conference on Asian Studies
May 29 - June 1, 2014 - ACCS2014 - The Fourth Asian Conference on Cultural Studies

June 12-15, 2014 - ACSS2014 - The Fifth Asian Conference on the Social Sciences
June 12-15, 2014 - ACSEE2014 - The Fourth Asian Conference on Sustainability, Energy and the Environment

October 28 - November 2, 2014 - ACE2014 - The Sixth Asian Conference on Education
October 28 - November 2, 2014 - ACSET2014 - The Second Asian Conference on Society, Education and Technology

November 13-16, 2014 - MediAsia2014 - The Fifth Asian Conference on Media & Mass Communication
November 13-16, 2014 - FilmAsia2014 - The Third Asian Conference on Film and Documentary

November 20-23, 2014 - ABMC2014 - The Fifth Asian Business & Management Conference
November 20-23, 2014 - ACPEL2014 - The Second Asian Conference on Politics, Economics & Law

July 3-6 - ECSS2014 - The Second European Conference on the Social Sciences
July 3-6 - ECSEE2014 - The Second European Conference on Sustainability, Energy & the Environment
July 3-6 - ECPEL2014 - The Inaugural European Conference on Politics, Economics and Law
July 3-6 - EBMC2014 - The Inaugural European Business and Management Conference

July 9-13 - ECE2014 - The Second European Conference on Education
July 9-13 - ECTC2014 - The Second European Conference on Technology in the Classroom
July 9-13 - ECSET2014 - The Inaugural European Conference on Society, Education & Technology
July 9-13 - ECLL2014 - The Second European Conference on Language Learning

July 17-20 - EuroFilm2014 - The Inaugural European Conference on Film and Documentary
July 17-20 - EuroMedia2014 - The Inaugural European Conference on Media and Mass Communication
July 17-20 - ECAH2014 - The Second European Conference on Arts & Humanities
July 17-20 - LibEuro2014 - The Inaugural European Conference on Literature and Librarianship

July 24-27 - ECCS2014 - The Inaugural European Conference on Cultural Studies
July 24-27 - ECAS2014 - The Inaugural European Conference on Asian Studies
July 24-27 - ECES2014 - The Inaugural European Conference on European Studies
July 24-27 - ECP2014 - The Inaugural European Conference on Psychology & the Behavioral Sciences
July 24-27 - ECERP2014 - The Inaugural European Conference on Ethics, Religion & Philosophy

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