Relationship Between Multiple Intelligences and Performance in Technology Livelihood Education: Basis for Differentiated Instruction

Sheila Silang, Department of Education General Luna District, Philippines

iafor

The International Academic Forum
www.iafor.org

Introduction

Every person is a unique individual, they have different talent, understanding, way of appreciation, likes/dislikes and field of interest for a career as well. Encouraging the students to utilize their multiple intelligence will lead to a better one.

In every variables, there is always adaptation wherein people should be, like students who are in different level as to age and gender, they have different field of interest. Girls are much more patient rather than boys when it comes to household chores. We can determine their ability and skills when we see that they are well-motivated or they really like the field they have chosen.

On the other hand, sometime a person's interest is came from other people whom they admired most or influenced by them. If the child sees that more professional are in their community, he/she will like to be like them in the future especially if there is an assistance coming from the government to pursue their studies up to tertiary level. This research attempt to provide an analysis in multiple intelligences as basis for classroom instruction in Technology Livelihood Education in Malaya National High School, General Luna, Quezon.

Statement of the Problem

General Luna, Quezon is composed of twenty seven barangays. There are only two public high schools. We are aware that K-12 curriculum is focused on providing sufficient time for mastery of concepts and skills, develop lifelong learners, and prepare graduates for tertiary education, middle-level skills development, employment, and entrepreneurship.

The challenge is with TLE offering a vast area of specializations, how would Multiple Intelligence play its vital role as basis in classroom instruction in acquiring the requirement of the said curriculum?

Subproblems

1.To what extent do the respondent students manifest the following types of intelligences:
> 1.1 Visual-Spatial
> 1.2 Body-Kinesthetic
> 1.3 Musical
> 1.4 Interpersonal
> 1.5 Intrapersonal
> 1.6 Verbal-Linguistic
> 1.7 Logical-Mathematical
> 1.8 Naturalistic

2. What media should be used approriate to the student's learning style?
> 2.1 Visual
> 2.2 Printed Words
> 2.3 Sound
> 2.4 Motion

2.5 Color

2.6 Realia

3. What is the impact of multiple intelligence as basis for differentiated instruction in T.L.E. based on the following student's ability?

3.1 Learning Characteristic

3.2 Reading Ability

3.3 Performance

4. To what extent do the intelligences of the student relate with their academic performance?

Purpose of Research

This research seeks to make an impact analysis on multiple intelligence as the basis for differentiated classroom instruction in TLE. It will also address the felt need of how TLE subject could be taught effectively exhausting all the possible means.This study seek the effect of giving different instruction according to the ability of the students in the following objectives:

1. student's technological skills enhancement

2. learning potential improvements

3. having better linkage between school and community in a need for soliciting different learning devices and materials for the learner's academic progress

Literature Review

The following section consists of background information relating to multiple intelligence, including definitions and explanations of differentiated instruction in Technology in Livelihood Education domains as well as the learning styles in the Theory of Multiple Intelligence and the subject T.L.E. itself. This section will also establish abbreviations for common terms to be used throughout this thesis and sets the stage for the research that follows.

Theory of Multiple Intelligences Defined

The theory of multiple intelligences is a theory of intelligence that differentiates it into specific (primarily sensory) "modalities", rather than seeing intelligence as dominated by a single general ability.

Howard Gardner of Harvard has identified seven distinct intelligences. This theory has emerged from recent cognitive research and "documents the extent to which students possess different kinds of minds and therefore learn, remember, perform, and understand in different ways," according to Gardner (1991). According to this theory, "we are all able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking, the use of the body to solve problems or to make things, an understanding of other individuals, and an understanding of ourselves. Where individuals differ is in the strength of these intelligences - the so-called profile of intelligences -and in the ways in which such intelligences are invoked

and combined to carry out different tasks, solve diverse problems, and progress in various domains."

Gardner says that these differences "challenge an educational system that assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. Indeed, as currently constituted, our educational system is heavily biased toward linguistic modes of instruction and assessment and, to a somewhat lesser degree, toward logical-quantitative modes as well." Gardner argues that "a contrasting set of assumptions is more likely to be educationally effective. Students learn in ways that are identifiably distinctive. The broad spectrum of students - and perhaps the society as a whole - would be better served if disciplines could be presented in a numbers of ways and learning could be assessed through a variety of means." The learning styles are as follows:

Visual-Spatial (Picture Smart)
Think in terms of physical space, as do architects and sailors. Very aware of their environments. They like to draw, do jigsaw puzzles, read maps, daydream. They can be taught through drawings, verbal and physical imagery. Tools include models, graphics, charts, photographs, drawings, 3-D modeling, video, videoconferencing, television, multimedia, texts with pictures/charts/graphs.

Bodily-Kinesthetic (Body Smart)
Use the body effectively, like a dancer or a surgeon. Keen sense of body awareness. They like movement, making things, touching. They communicate well through body language and be taught through physical activity, hands-on learning, acting out, role playing. Tools include equipment and real objects.

Musical (Music Smart)
Show sensitivity to rhythm and sound. They love music, but they are also sensitive to sounds in their environments. They may study better with music in the background. They can be taught by turning lessons into lyrics, speaking rhythmically, tapping out time. Tools include musical instruments, music, radio, stereo, CD-ROM, multimedia.

Interpersonal (People Smart)
Understanding, interacting with others. These students learn through interaction. They have many friends, empathy for others, street smarts. They can be taught through group activities, seminars, dialogues. Tools include the telephone, audio conferencing, time and attention from the instructor, video conferencing, writing, computer conferencing, E-mail.

Intrapersonal (Self-Smart)
Understanding one's own interests, goals. These learners tend to shy away from others. They're in tune with their inner feelings; they have wisdom, intuition and motivation, as well as a strong will, confidence and opinions. They can be taught through independent study and introspection. Tools include books, creative materials, diaries, privacy and time. They are the most independent of the learners.

Verbal-Linguistic (Word Smart)
Using words effectively. These learners have highly developed auditory skills and often think in words. They like reading, playing word games, making up poetry or

stories. They can be taught by encouraging them to say and see words, read books together. Tools include computers, games, multimedia, books, tape recorders, and lecture.

Logical-Mathematical (Logic Smart)
Reasoning, calculating. Think conceptually, abstractly and are able to see and explore patterns and relationships. They like to experiment, solve puzzles, ask cosmic questions. They can be taught through logic games, investigations, mysteries. They need to learn and form concepts before they can deal with details.

Naturalistic (Nature Smart)
This area has to do with nurturing and relating information to one's natural surroundings. Examples include classifying natural forms such as animal and plant species and rocks and mountain types. This ability was clearly of value in our evolutionary past as hunters, gatherers, and farmers; it continues to be central in such roles as botanist or chef. This sort of ecological receptiveness is deeply rooted in a "sensitive, ethical, and holistic understanding" of the world and its complexities– including the role of humanity within the greater ecosphere. At first, it may seem impossible to teach to all learning styles. However, as we move into using a mix of media or multimedia, it becomes easier. As we understand learning styles, it becomes apparent why multimedia appeals to learners and why a mix of media is more effective. It satisfies the many types of learning preferences that one person may embody or that a class embodies. A review of the literature shows that a variety of decisions must be made when choosing media that is appropriate to learning style.

Visuals
Visual media help students acquire concrete concepts, such as object identification, spatial relationship, or motor skills where words alone are inefficient.

Printed words
There is disagreement about audio's superiority to print for affective objectives; several models do not recommend verbal sound if it is not part of the task to be learned.

Sound
A distinction is drawn between verbal sound and non-verbal sound such as music. Sound media are necessary to present a stimulus for recall or sound recognition. Audio narration is recommended for poor readers.

Motion
Models force decisions among still, limited movement, and full movement visuals. Motion is used to depict human performance so that learners can copy the movement. Several models assert that motion may be unnecessary and provides decision aid questions based upon objectives. Visual media which portray motion are best to show psychomotor or cognitive domain expectations by showing the skill as a model against which students can measure their performance.

Color
Decisions on color display are required if an object's color is relevant to what is being learned.

Realia

Realia are tangible, real objects which are not models and are useful to teach motor and cognitive skills involving unfamiliar objects. Realia are appropriate for use with individuals or groups and may be situation based. Realia may be used to present information realistically but it may be equally important that the presentation corresponds with the way learner's represent information internally.

Instructional Setting

Design should cover whether the materials are to be used in a home or instructional setting and consider the size what is to be learned. Print instruction should be delivered in an individualized mode which allows the learner to set the learning pace. The ability to provide corrective feedback for individual learners is important but any medium can provide corrective feedback by stating the correct answer to allow comparison of the two answers.

Learner Characteristics

Most models consider learner characteristics as media may be differentially effective for different learners. Although research has had limited success in identifying the media most suitable for types of learners several models are based on this method.

Reading ability

Pictures facilitate learning for poor readers who benefit more from speaking than from writing because they understand spoken words; self-directed good readers can control the pace; and print allows easier review.

Performance

Many models discuss eliciting performance where the student practices the task which sets the stage for reinforcement. Several models indicate that the elicited performance should be categorized by type; overt, covert, motor, verbal, constructed, and select. Media should be selected which is best able to elicit these responses and the response frequency. One model advocates a behavioral approach so that media is chosen to elicit responses for practice. To provide feedback about the student's response, an interactive medium might be chosen, but any medium can provide feedback. Learner characteristics such as error proneness and anxiety should influence media selection. Testing which traditionally is accomplished through print, may be handled by electronic media. Media are better able to assess learners' visual skills than are print media and can be used to assess learner performance in realistic situations.

Theoretical Basis For M.I. Theory

Many people look at the above categories—particularly musical, spatial, and bodily-kinesthetic—and wonder why Howard Gardner insists on calling them intelligences rather than talents or aptitudes. He was quite conscious of his use of the word *intelligence* to describe each category. To provide a sound theoretical foundation for his claims, Gardner set up certain basic "tests" that each intelligence had to meet to be considered a full-fledged intelligence and not simply a talent, skill, or aptitude. The criteria he used include the eight factors: Potential isolation by brain damage, The existence of savants, prodigies, and other exceptional individuals, A distinctive developmental history and a definable set of expert "end-state" performances, Support from psychometric findings, An identifiable core operation or set of operations, and

Susceptibility to encoding in a symbol system.In Potential isolation by brain damage, several cases, brain lesions seemed to have selectively impaired one intelligence while leaving all the other intelligences intact. A person with a lesion in the temporal lobe of the right hemisphere might have her musical capacities selectively impaired, while frontal lobe lesions might primarily affect the personal intelligences. While in The existence of savants, prodigies, and other exceptional individuals, Savants are defined as individuals who demonstrate superior abilities in part of one intelligence while one or more of their other intelligences function at a low level. They seem to exist for each of the eight intelligences.

In A distinctive developmental history and a definable set of expert "end-state" performances, Each intelligence-based activity has its own developmental trajectory; that is, each activity has its own time of arising in early childhood, its own time of peaking during one's lifetime, and its own pattern of either rapidly or gradually declining as one gets older. Gardner (1993b) points out that we can best see the intelligences working at their zenith by studying the "end-states" of intelligences in the lives of truly exceptional individuals. An evolutionary history and evolutionary plausibility. While in Support from psychometric findings, By looking at specific psychological studies, we can witness intelligences working in isolation from one another.. Similarly, in studies of cognitive abilities such as memory, perception, or attention, we can see evidence that individuals possess selective abilities.

Each of these cognitive faculties, then, is intelligence-specific; that is, people can demonstrate different levels of proficiency across the eight intelligences in each cognitive area. In An identifiable core operation or set of operations, Each intelligence has a set of core operations that serve to drive the various activities indigenous to that intelligence. Gardner speculates that these core operations may someday be identified with such precision as to be simulated on a computer. And lastly, Susceptibility to encoding in a symbol system. According to Gardner, one of the best indicators of intelligent behavior is the ability to use symbols. Gardner suggests that the ability to symbolize is one of the most important factors separating humans from most other species. He notes that each of the eight intelligences in his theory meets the criterion of being able to be symbolized.

Methodology
This chapter includes the Locale of the Study, Research Design, Population Sampling, Research Instrumentation and Statistical Treatment.

Locale of the Study
Research locales are two public high schools in General Luna District, General Luna Quezon.

Research Design
The descriptive method of research will be utilized. The study shall first identify the differentiated instruction in TLE by teachers. After it was identified, program of intervention may be given for enhancement and to overcome weaknesses so as students and teachers will be benefited. Questionnaires will be given to respondents and results then will be used for statistical analysis.

Statistical Analysis

There is a total of 200 respondent students (12-16 years old). Data results below show the percentage of the students which multiple intelligence they mainly excel.

Bodily-Kinesthetic	29	14.5%
Interpersonal	28	14%
Verbal-Linguistic	32	16%
Logical-Mathematical	30	15%
Naturalistic	16	8%
Intrapersonal	17	8.5%
Visual-Spatial	19	9.5%
Musical	29	14.5%
TOTAL	200	100%

Conceptual Framewok
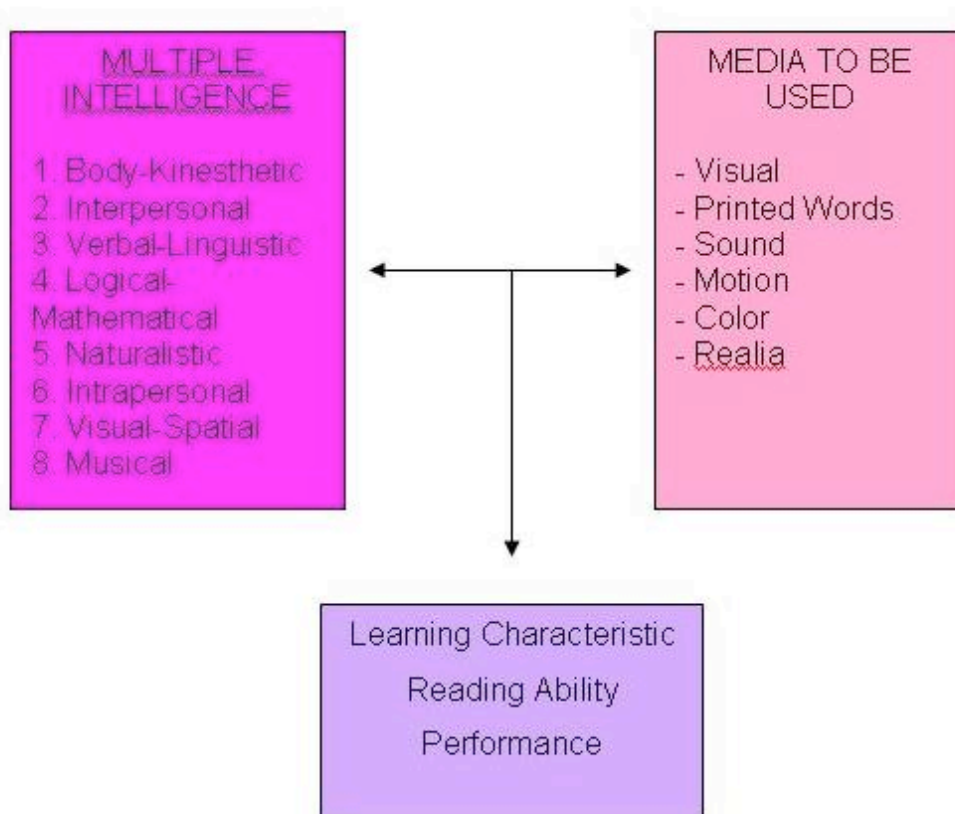
Theoretical Framework

Theory on Multiple Intelligence in Relation to Tle
A famous person named Gardner defines an intelligence as "biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture." According to Gardner, there are more ways to do this than just through logical and linguistic intelligence. Gardner believes that the purpose of schooling "should be to develop intelligences

and to help people reach vocational and avocational goals that are appropriate to their particular spectrum of intelligences. People who are helped to do so, [he] believe[s], feel more engaged and competent and therefore more inclined to serve society in a constructive way."

Gardner's theory argues that students will be better served by a broader vision of education, wherein teachers use different methodologies, exercises and activities to reach all students, not just those who excel at linguistic and logical intelligence. It challenges educators to find "ways that will work for this student learning this topic". In relation to TLE, wherein a student is not limited to just honing his/her vocational talent and skills but also the avocational, using multiple intelligence in defining and putting into proper perspective his/her capabilities will make TLE learning an enjoyable and worthwhile subject.

Bibliography

Howard Gardner # *39, Theory of Multiple Intelligence Retrieved from* http/en.wikipedia.org/wiki/

Thomas Armstrong 2012 (Multiple Intelligence in the Classroom 3rd edition)

David Perkins, *June 14, 2013 Theories of Intelligence*(*The WHOs of Intelligence Theories)*

Technical Education and Skills Development Authority (TESDA)
Carla Lane, *Retrieved January 12, 2011 "The Distance Learning Technology Resource Guide,"*