Design of Challenge Based Learning Module for Developing Social and Digital Skills of Vocational Education Students in Thailand

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Abstract

The design of a learning module to achieve social and digital skills for students in the vocational education system in Thailand has been introduced. The module included online lessons for self-learning and onsite activities following the process of Challenge-based Learning (CBL) classified as 3 processes: engage process, investigate process, and act process. The online lessons were designed as the Definition of community, Digital wellness, Digital content creation with smartphones, Online marketing, Challenge-based Learning Details, and Project Accomplishment. Students learned these lessons before access to activities in the CBL process. The students were grouped and assigned to get the project theme from the community and investigate how to apply knowledge and vocational skills to assist the community. The CBL process was utilized as a project framework that students would get the project theme from the engage process, get the project procedures from the investigate process, and get project accomplishment from the act process. To ensure the effectiveness and efficiency of the learning process, an on-site mechanism has been developed to meet, support, and monitor CBL learning activities for 533 students from vocational colleges in Thailand. The students were grouped as A, B, C, D, E, and F to create the projects and all projects were designed to present the results through 3 minutes of digital clips. The results indicate that the students have received enhanced experiences including skills in critical thinking, emotional intelligence, social skills, social responsibility, readiness for change, and various preparedness and adaptability to changes.

Keywords: Learning Module, Challenge Based Learning, Online Learning, Digital Skill Development, Social Skill Development

Introduction

Vocational education usually is set to prepare young Thai people to have the readiness to work as manpower in the workforce or labor market. This is an educational system that is different from fundamental education (high school level education) which focuses on preparing people with academic skills for continuing to get access to higher education. In Thailand, vocational education is divided into 2 levels (1) vocational certificates which have 3 study years for basic professional skills in many kinds of occupations for those who graduate from secondary schools, and (2) vocational diploma certificates which have 2 study years for advanced professional skills in many kinds of occupations for those who graduate from the vocational certificate level or high school. The goal of developing students in the vocational education system in the country at technical colleges is the professional skills that fit for needs of many kinds of occupations in the labor market. In the past, this focused only on how to develop students having enough professional skills with the necessary technical disciplines for working after graduated study in college. The learning activities are almost handled in the college and have only a short duration for work practicing in the real workplace. However, presently, expectations of vocational education have been changed. Due to it being related to many kinds of innovation both in development and application, then, it is not adequate for holding only professional skills, but 21st-century skills also must be developed for vocational students to be good and smart manpower in the era of everything around us is smart.

Digital skills are one of the best added-on skills for this era for technicians who are experts in professional skills. The filming skills are the best example of digital skills that students may apply to expand their professional skills to other opportunities in the works. Meanwhile, social skills such as global thinking or thinking for other skills are also necessary for vocational students due to, they have competencies in professional that are very good if they have the mind to do something for others with their professional.

Figure 1: Challenge Based Learning Framework [1]

To develop students to have both digital skills and social skills, the challenge-based learning (CBL) concept is a good way to be considered. This has been developed from the project-based learning (PjBL) concept that is designed to relate to real issues from the society of the community around students. The CBL will be applied as the learning base to develop the potential of students who must find and take the challenge to solve problem issues from the social or communities under the facilitation and coaching of teachers. The learning process for CBL can be divided into 3 steps as shown in Fig.1. The first step is "Engage" which is to

find out the problem issue from the society or communities around students covering house, school, or workplace. The second step is "Investigate" which is to find out what knowledge, skills, and materials are needed and what plans are needed to solve the defined problems. The third step is "Act" which is to find out how to implement the defined plan and what the conclusion of the solution is.

Therefore, this paper aims to design a learning module to develop the digital skills and social skills of vocational students in the vocational education system in Thailand based on the framework of challenge-based learning (CBL).
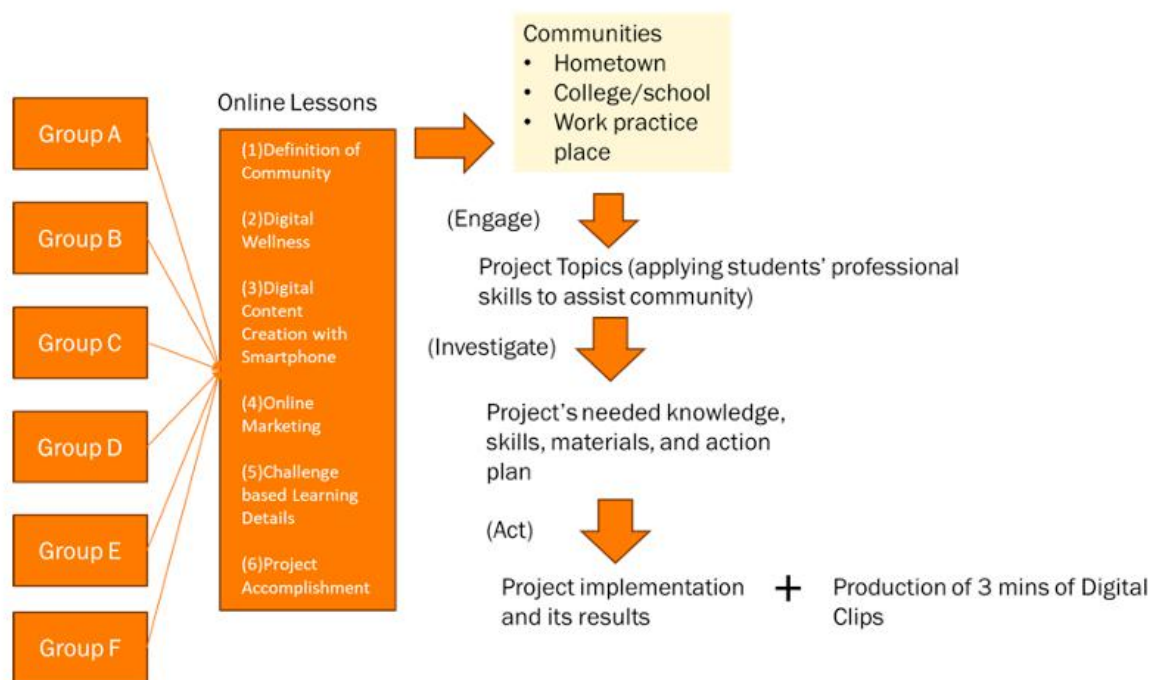
Design of the Proposed CBL Module

Figure 2: Proposed CBL Module

To design the learning module, the module learning outcome must be defined first. After learning the proposed module, students will be able to have (1) Awareness of social issues and the ability to apply their knowledge and skills to help society, (2) Empathy towards society and community, (3) Leadership and teamwork abilities, (4) Readiness for change due to changing social contexts, (5) Self-value recognition, and (6) Work opportunity. All these are the module learning outcomes. To achieve these outcomes, learning activities were designed by using learning technology and learning design as shown in Fig.2. To prepare students before access to the CBL processes, 6 necessary online lessons as (1) **Definition of Community** to understand what community is and how to understand others who are around us, (2) **Digital Wellness** to understand what useful and prohibition of social media are, (3) **Digital Content Creation with Smartphone** to understand how to create digital contents with a smartphone because it is the most convenient for students, (4) **Online Marketing** to know how to promote and sell products on online platforms, (5) **Challenge-based Learning Details** to understand each step of learning in the CBL, and (6) **Project Accomplishment** to know how to complete the project from initiation to the end were designed. Students will be grouped and all be assigned to learn designed online lessons that have a pretest and posttest

for each lesson so students can do self-evaluation. After self-online learning, each group of students will go to a community that here widely defined as a hometown, college/school, or work practice place to find out the social issue/problem. In the **Engage** process, students will discuss what issue they faced and what professional knowledge and skills they have for assisting the community as a group project topic. Next, in the **Investigate** process, students will find out what needed knowledge, skills, and materials are and define the action plan for implementing to accomplish the project. Finally, in the **Act** process, students will implement the action plan until they accomplish the project. To present the results of the project and to show how achievement for all module learning outcomes occurred, the production of 3 minutes of digital clips will be required. All these steps shown in Fig.2 are the proposed learning module and all learning evidence should be kept in the learning management system (LMS). Moreover, in developing students with the CBL processes, the teacher should act by facilitating or coaching skills.

Proposed Module Implementation

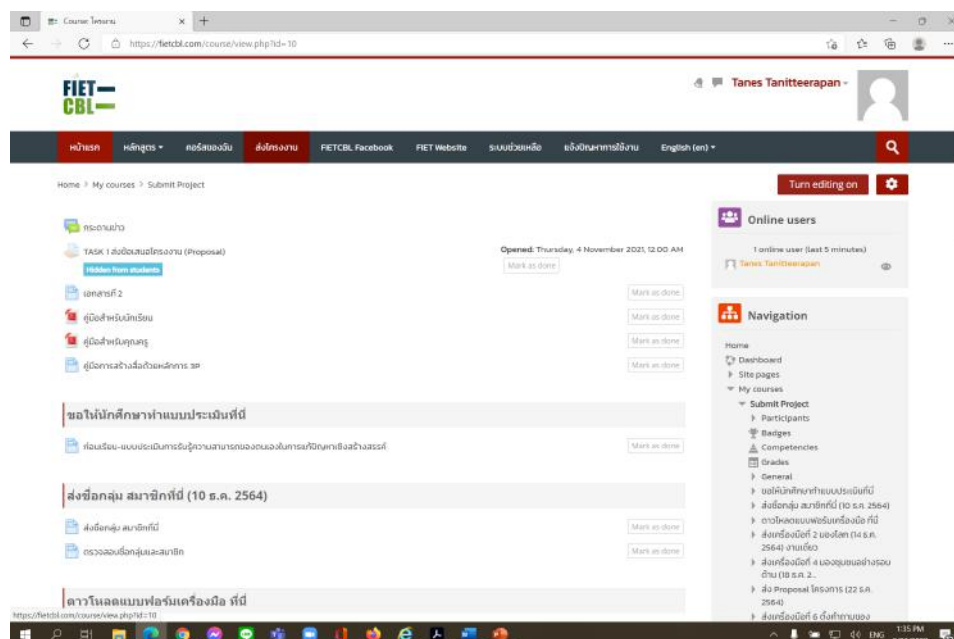Figure 3: Proposed CBL Module during tryout

Figure 4: Designed LMS for keeping all learning evidence on the CBL processes

The module as shown in Fig.2 was implemented and to verify the idea, it was applied to the project population of 533 students from 15 vocational colleges around central Thailand.

Students were grouped across disciplines and institutions as A, B, C, D, E, and F total of 78 groups. In this, 70 teachers from 15 participated vocational colleges and 16 researchers from King Mongkut's University Thonburi were involved as facilitators or coaches in each process of the CBL. During the running process of the CBL module, online and onsite activities as shown in Fig.3 were applied. All assignments from each process of Engage, Investigate, and Act will be kept in LMS as shown in Fig.4. Here, students can access the online lessons and get teacher assignments for each step of learning in the CBL processes.

By applying the proposed module to develop the digital and social skills of 533 students, 78 projects were created and can be divided into 5 categories (1) 7 projects for agriculture works, (2) 13 projects for medical and health works, (3) 18 projects for waste energy and environment management, (4) 26 projects for life improvement, and (5) 14 projects for production and online marketing. All projects must present with 3 minutes of digital clip as shown in Fig.5.

Figure 5: Some digital clips from the proposed module
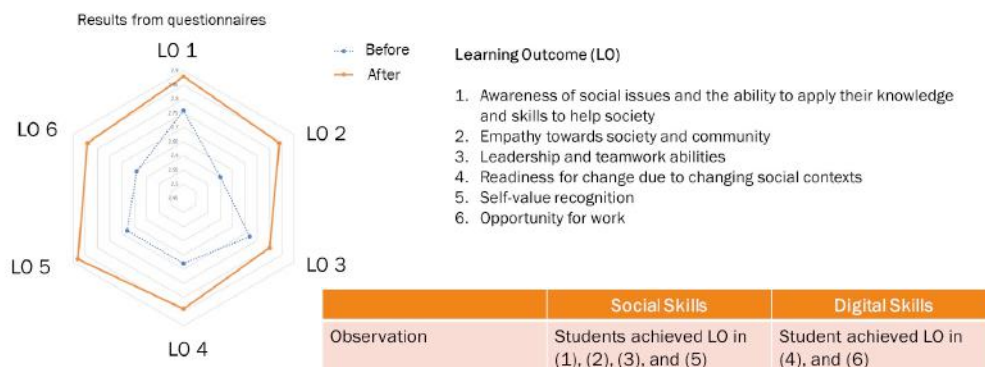
Module Achievement Evaluation

Figure 6: Results of Module Evaluation

To evaluate the achievement of the proposed module, students' behavior while running the module was applied by the researchers. As a result, students can achieve social skills with the learning outcomes on awareness of social issues and the ability to apply their knowledge and skills to help society, empathy toward society and community, leadership and teamwork abilities, and self-value recognition and can achieve digital skills with the learning outcomes on readiness for change due to changing social contexts, and work opportunity as shown in the table in Fig.6. Moreover, the questionnaires for evaluation of the student's learning achievement were applied to the teachers. These were applied to observe before and after learning with the proposed module as shown in Fig.6. From the figure, all learning outcomes achievements after learning were higher than before learning significantly.

Conclusion

A prototype of the design of a learning module for developing social skills and digital skills based on Challenge Based Learning (CBL) was introduced for the Vocational Education System. The module included online lessons for self-learning and onsite activities following the process of Challenge-based Learning (CBL) classified as 3 processes: engage process, investigate process, and act process. The online lessons were designed as the Definition of community, Digital wellness, Digital content creation with smartphones, Online marketing, Challenge-based Learning Details, and Project Accomplishment. Students learned these lessons before access to activities in the CBL process. The students were grouped and assigned to get the project theme from the community and investigate how to apply knowledge and vocational skills to assist the community. The designed module was run both online and onsite as a hybrid learning system. Teachers acted as facilitators or coaches in CBL process and students were developed to have achievement on social skills and digital skills with real issues from communities. Almost 80 projects were developed and created as 3 minutes of digital clips. The results indicate that the students have received enhanced experiences including skills in critical thinking, emotional intelligence, social skills, social responsibility, readiness for change, and various preparedness and adaptability to changes. This designed module might be useful for inspiring an idea to research on development of digital and social skills for Vocational students or others by using various digital education tools as based of development.

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