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The Development of Social Media Interactive Learning Environments to Enhance ICT Literacy Skill for High School Students

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Abstract: Design and develop learning environment of social media to enhance ICT skill for high school students and study students' learning motivation. The target group in this research was 34 students in Matthayom Suksa 1 (grade7) at demonstration school of Khon Kaen University (secondary level). Data collection performed in the first semester of the academic year 2016 with computer subject. Developmental research Type I including 1) Designing and development 2) Evaluation 3) Validation. Descriptive statistic was used in this study. The result of pilot study found that the components learning environment composed of 1) Problem base 2) Information resource 3) Cognitive tools 4) Related Case 5) Scaffolding 6) Coaching 7) Social/context support. Students' learning motivation was the questionnaire of motivation scale has 25 items by developing from Science Motivation Questionnaire (Srisawasdi, 2013). This instrument was a Likert-type scale putting items that five motivation components. The pilot results are as follows: The Intrinsic Motivation there is value in learning more about computer solutions significantly (IM, Mean = 4.50, SD = 0.90). That consists of five items, Career Motivation is at the most about the students see the advantages to doing problem-solving skills, computer adapted to a career involving computers (CM, Mean = 4.26, SD = 0.85). That is consists of five items, Self-determination. In the most about the dedication to learn. The turnout on PC (SD, Mean = 4.21, SD = 0.84.). That consists of five items, Self-efficacy. A lot about the level of confidence in the class. The test content knowledge and skills on the computer (SE, Mean = 3.35, SD = 0.67). That consists five items, and Grade Motivation is at a high level. The confidence to learn to score and grade at the school to their own computer (GM, Mean = 3.99, SD = 0.80).

Keywords: Social Media, Interactive Learning Environments, ICT Literacy Skill

1. Introduction

The modification in advancement of information and communication which role and influence on lives of people with all ages at the present. Globalization, is shifted the information news that is reoccurred and rapidly changed, as a result of advances in science and information technology affect the change of the education, economic, politic and society. In the world of the 21st century, to improve the qualitative and sustainable population is the most important thing, which would be served as the basis for the key of developing people. Moreover, it would encourage students to eligible to live in the modern world. The skills for livelihood in 21st Century are fundament, which should encourage students to achieve in learning and innovating skills. It determines the readiness of students to enter the working world that has more complex today, such as creativity and innovation, critical thinking and problem solving, communication and collaboration Skills, and knowledge of information technology.

The literacy of information technology and communication skills, students could use as a learning tool by learning from online textbook which could response learning of them. The literacy of information technology and communication skills could help students to define scope of the problem. Data accession, data management, evaluation, creation and integration are contributed to learning. UNESCO also emphasizes to support and develop the information technology literacy and communicated skills.

Communication, which is quickly respond the modification today is social media or electronic media; this is a mediator that allows guests to participate in creation and share their opinions about

Education through internet in the present increasingly because more features, which have been added, they are conducted to learn in the 21st century and they could respond to cooperative learning and sharing knowledge. Whether it was received popularity in high usages and easy accession. The instructor could offer lessons via social media. Students could study or seek more knowledge easily from social media, which they are being used. It could also be applied to the current teaching, which focuses on less teaching to gain more learning.

Constructivism theory is a comprehensive theory about the rationality of faith, which encourages students to seek knowledge with focusing on individual idea and definite creation. Constructivist with the new viewpoint has expanded scope that gives the concept of culture and social learning. Then it is the creation of learning management which is reacted to techniques by designing in learning by doing environment.

From the importance and necessity above, the researcher is interested in designing and developing interactive learning environment through social media to promote the literacy of information technology and communication skills for secondary school students.

2. Literature review

Constructivist Learning Environment

Constructivist learning environments (CLE) are characterized as hands-on learning environments that strive to imitate real-life contexts. CLE has a social learning component as well. In a CLE, learners construct knowledge, solve novel problems, and test the truth or accuracy of their conclusions through social negotiation, otherwise known as collaboration. CLEs stress the flexibility of the learner's mind and its ability to actively construct meaning (Jonassen, 1999)

Social media technology

In a matter of a few short years, innovations in social media technologies have multiplied on a scale never before seen, revolutionizing not just the way in which we communicate, but also how we interact with others (Weisgerber and Butler, 2010). The ascent of social software provides new avenues and new opportunities for increased participation and collaboration (Parker and Chao, 2008). The participatory web, including social networking sites such as Facebook and content sharing sites such as YouTube and Flickr, allow individuals to establish or maintain connections with others, establish their social networks, and share information in the form of wikis, blogs, tweets, podcasts, video, RSS feeds, and more (McCarthy, 2010; Weisgerber, 2008). Instructors have been embracing and looking for innovative ways of using social media in the classroom. Sponsored by the university's Information Technology Services, the author led students enrolled in a software development class in designing and implementing a web-based social media interactive learning environment. The learning environment aims to create an impactful social engagement within a lecture-based classroom. (Chao and Parker, 2011; Kumpang and Kanjug, 2015).

ICT literacy

Discussions of Information Technology in Education typically emphasize the Technology rather than the Information. Widespread technology has meant that people encounter more information, in a greater variety of formats, than ever before. Technology is the portal through which we interact with information, but people's ability to handle information to solve problems and think critically about information tells us more about their future success than their knowledge of specific hardware or software. These skills known as Information and Communications Technology (ICT) Literacy comprise a 21st century form of literacy, in which researching and communicating information via digital environments are as important as reading and writing were in earlier centuries. ICT literate students master content faster, are better problem-solvers, become more self-directed, and assume greater control over learning (Katz, 2007).

3. Method

Synthesis Designing Framework

Synthesis design environment to learn in this episode. Research presented three main points below. Synthesis of theoretical concepts (Theoretical Framework) found. The framework consists of basic theoretical research. The four basic theories: (1) the underlying psychology of learning. (Psychological base) constructivist learning theory which Whistler. The theory is based on two principles constructivist Whistler Piaget's intellectual properties. Constructivist theory and Whistler oriented society. Victor Burgos pot (2), based on the design of learning (Pedagogical base) Constructivist Learning Environments (CLEs) aimed at promoting the ability to solve problems. Develop the concept of the situation is complicated. By learning from the questions that the case is complex. Or aim to learn from the students themselves. Learning alertness and focus on real conditions. (3)The underlying technology (Technology base) social media affect performance, speed, and ease of management. (4) The fundamental skills and knowledge (Knowledge and skill base), Information Technology and Communications of The iSkills with7standard adapted from Educational Testing Service as shown in Figure 1.

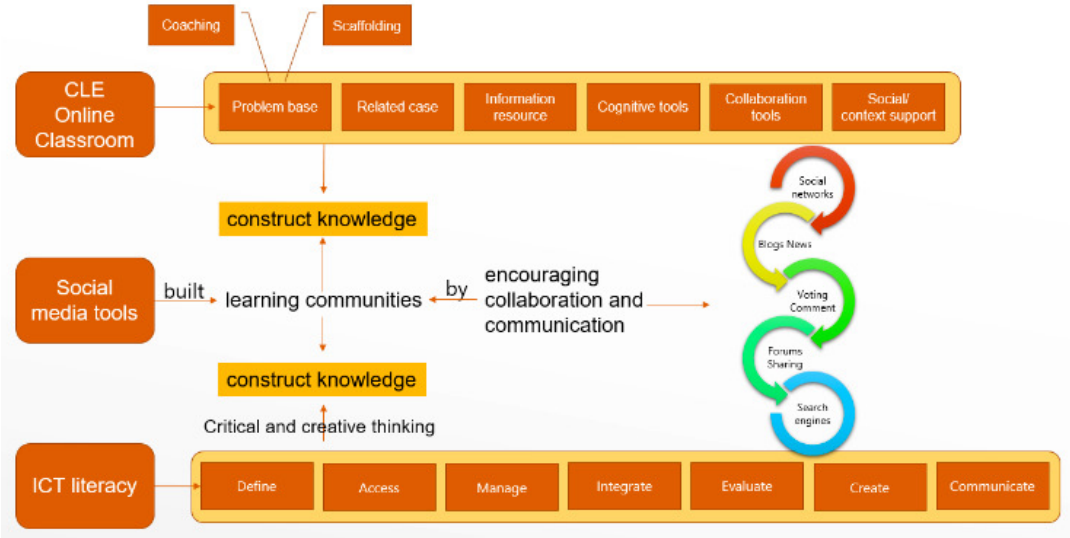

Figure 1. Designing framework of social media interactive learning environments to enhance ICT literacy skill (Kanjug, 2016)

Learning Environment Design

Cognitive restricting and ICT literacy skills

To stimulate the intellectual skills and knowledge of information technology and communications. Problem base is an important component of the learning interaction. Promoting skills and knowledge of information technology and communications. Learning is designed to focus on the issues that define the context, and the mission of learning skills that promote information and communications technology. According to the conceptual framework Educational Testing Service 7 Skills include 1) Define 2) Access 3) Manage 4) Integrate 5) Evaluate 6) Create 7) Communicate as shown in Figure 2.

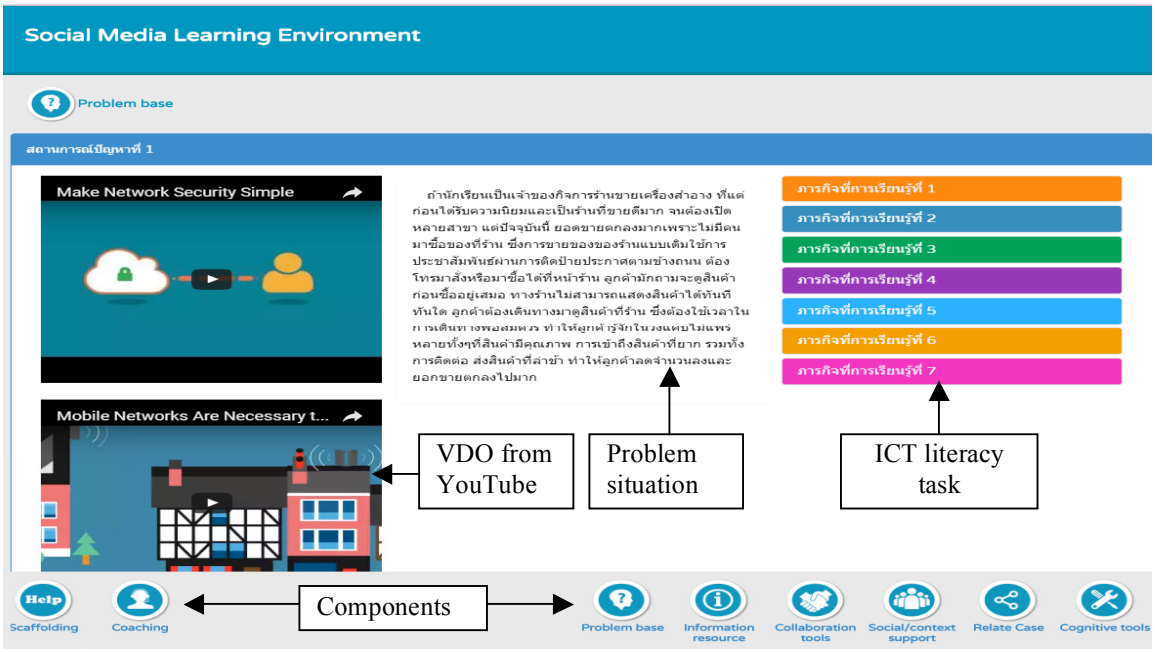

Figure 2. Screen design of Problem base

Supporting for restructuring the intelligence and knowledge of information

Table 1: Supporting for restructuring

Principles	Component	Characteristic	Social media
Supporting for restructuring the intelligence and knowledge of information technology	Information resource	static	Web base
		dynamic	Blogger
	Cognitive tools	Search	Google
		data collection	Google Docs
		classification	Mindmeister
		integration	Blogger
		communication	Facebook
	Relate Case	YouTube	

Table 1 shows technology and communications. Key elements are (1) Information resource support to discover the answer to solve the problem by discovering knowledge from various sources. Based on the theory of Cognitive popular (2) Cognitive tools to support their mission to solve complex problems. It is a tool to expand the concept, design tools, intellectual basis of the theory of information processing, and a theory of rationality (3) Collaboration tools to encourage students to share experiences between students, teachers, and experts expanded view of thinking. Helping adjust misunderstandings. (Misconception) occurred while learning based on the concept of Social Constructivist of Vygotsky (4) Related Case encourages students to personalize the experience to close the case. To expand the view to change the perception.

Support for social interaction

Key element are (1) Coaching. Coaches will encourage students to develop self- motivate and help students to complete the mission by principles of cognitive apprenticeship model (Cognitive Apprenticeship) (2) Social / context support social learning solutions or to learn if the mission cannot be achieved manually as shown in Table 2 and Figure 3.

Table 2: Support for social interaction

Principles	Configuration	Social media
Support for social interaction	Coaching	Facebook
	Social/context support	YouTube and Blogger

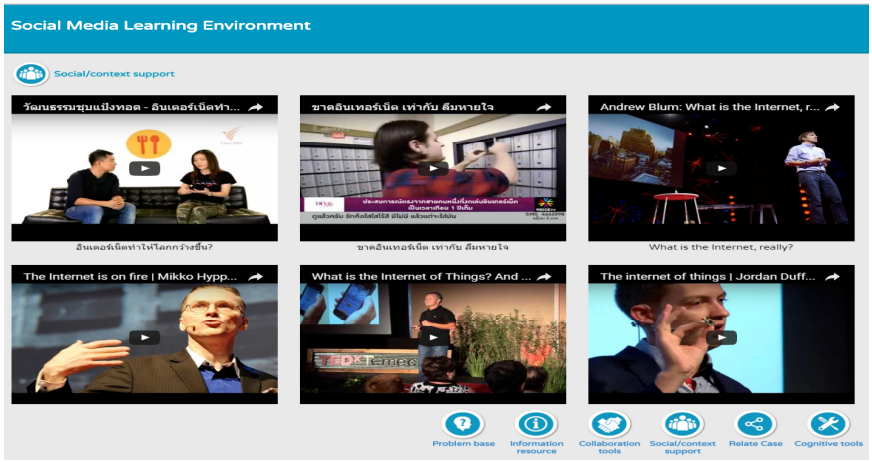

Figure 3. Screen design of Social/context support

Pilot study

3.3.1 Participants

1. Experts including 1) Content expert was teacher in school who was teaching in this subject 2) Learning media expert and 3) Learning environmental design expert.
2. The target group of 34 students in Matthayom Suksa 1 at Demonstration School of KhonKaen University (secondary level).

3.3.2 Research Instruments, Data Collection and Analysis

3.3.2.1 Research Instruments

This study used instruments that is questionnaire for explore computer learning motivation of student. The questionnaire of motivation scale has 25 items by developing from Science Motivation Questionnaire (Srisawasdi et al., 2013). This instrument was a Likert-type scale putting items that five motivation components such as Intrinsic Motivation (IM) that consists of five items, Career Motivation (CM) that is consists of five items, Self-determination (SD) that consists of five items, Self-efficacy (SE) that consists five items, and Grade Motivation (GM) that consists of five items. Students answer the questionnaire to each item on a five-point-scale of ranging from "never" (1 point) to "always" (5 point). as shown in Table 3

Table 3: shows example information of item on the questionnaire

Subscale	Description	Sample items
IM	Which involves learning computer for its own sakes	Interesting.
CM	Which involves learning computer as a means to an end	Understanding computer will benefit me in my career.
SD	Which refers to the power or ability to make a decision for oneself without influence from outside	I put enough effort into learning computer.
SE	Which refers to students' confidence that they can achieve well in computer.	I believe I can master computer knowledge.
GM	Which refers to the debilitating tension some students experience in association with grading in computer	I like to do better than other students on computer tests.

3.3.2.2 Data Collection and Analysis

The researcher provides computer motivation questionnaire to students around 15 minutes. After finishing the questionnaire, they learning with environment of social media to enhance ICT skill for high school students 1 hour 30 minutes. After finishing the learning.

Result

The pilot results are as follows: The Intrinsic Motivation there is value in learning more about computer solutions significantly (IM, Mean = 4.50, SD = 0.90). That consists of five items, Career Motivation is at the most about the students see the advantages to doing problem-solving skills, computer adapted to a career involving computers (CM, Mean = 4.26, SD = 0.85). That is consists of five items, Self-determination. In the most about the dedication to learn. The turnout on PC (SD, Mean = 4.21, SD = 0.84.). That consists of five items, Self-efficacy. A lot about the level of confidence in the class. The test content knowledge and skills on the computer (SE, Mean = 3.35, SD = 0.67). That consists five items, and Grade Motivation is at a high level. The confidence to learn to score and grade at the school to their own computer (GM, Mean = 3.99, SD = 0.80) as shown in Figure 4.

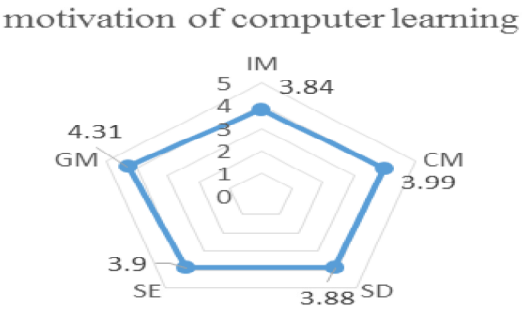

Figure 4. Show learner's motivation in computer learning

4. Conclusions and Future Work

The design and develop learning environment of social media to enhance ICT skill for high school students should carefully realize its context and quality relevant to realities as well as able to adapt for use in the future. This is an example experiment for interactive learning environment follows: internal motivation can be used to make a learning plan for problem-solving skills. In term of the computerizes, this can be adapted for increasingly supporting computer use. Whereas, external motivation can be used to operate learning course for those interested. Motivation to computer-testing can lead to context changes to understand easily. Finally, Motivation to results can result in encouraging and inspiring those to occur more learning.

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