

The Development of Flipped Classroom with Mobile Learning Model to Promote Digital Citizenship for Junior High School students; a Case Study of Thailand

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ABSTRACT

The research's purpose is to develop a flipped classroom teaching model using mobile learning to promote digital citizenship for junior high school students. The study started out by creating a preliminary model derived from the synthesis of relevant documents and research on composition and process of the model, thereafter, the data were collected by interviewing ten digital citizen development experts. The results were as follow: 1. The model consists of four key components: the student and teacher roles, learning environment, mobile learning technology, and assessment. 2. There are seven-steps of learning: educating outside the classroom, preparing for classroom activities, awareness activities, survey problems, formulate a problem, brainstorming, and presenting problem solutions. 3. The results of the evaluation of the teaching and learning model were the most appropriate.

Keywords

Instructional model; Mobile Learning; Flipped Classroom; Digital Citizenship

Introduction

The use of information and communication technology has led to a modern trend in society known as social networking. The social network is used as a communication tool between friends, serves as a public space to share information, educational purposes, create business opportunities, help society, and for joint entertainment.

However, information and communication technology are at risk as a large number of users can hide their true identities. This characteristic culminates in abusive behavior such as blaming, insulting, bullying, threatening, and cybercrime. Students aged 9-18 years old are at risk of being affected by online threats, cybercrime, or maybe the perpetrator of a technology crime (Military Commission Senate, 2012). The reason being that students may be completely unaware, do not know they were committing an offense, and think that their actions are not illegal. Being prepared to deal with the risks of social networking, which is a new threat to human security, is necessary and should accelerate the awareness and consciousness of the students. Students should use social networks creatively and help to develop the country by receiving education with goals to

empower students to become digital citizens who can use information and communication technology safely, without violating computer laws, thereby leading to digital citizenship completely (Royal Thai Police. 2014, Mike Ribble 2554, [Wasun liwlompaisan](#) and Sarunee Archawanunakul(2013).

Instructional design to promote digital citizenship by learning with materials before hand or providing the students with take-home materials, and then returning their homework to discuss at school. The teachers switched their role to the facilitator and encourage students to think, analyze, search for information by themselves, and encourage more learning as a team or with a group of friends (Woolf, B.P. 2010). Besides, mobile learning technology is a portable technology that can create learning opportunities. No matter the location or situation, the lessons can be reviewed at any time, by combining technology into a tool that can listen to or view pictures of lessons. Thereafter, the lessons are sent to the students. This method facilitates, supports, and promotes teaching and learning for the sake of enhancing digital citizenship (Spencer, D. 2012).

Therefore, flipped classrooms with mobile learning tend to promote digital citizenship for

junior high school students. This research will develop the flipped classroom with a mobile learning model to promote digital citizenship for junior high school students. Digital citizenship for junior high school students consist of (a) self-safety and computer systems, (b) communication to work together and create good relationships, (c) utilization of information, (d) coping with bullying and online threats, and (e) using technology ethically. Digital citizenship will enable students live happily in the 21st-century society with regards to innovation, technology, and communication.

Research Objective

The research's purpose is to develop a flipped classroom with a mobile learning model to promote digital citizenship for junior high school students in Thailand.

Review Literature

This research was designed using a research and development model. The independent variable is the flipped classroom with the mobile learning model, and the dependent variable is the digital citizenship characteristic.

1. The digital citizenship characteristic for junior high school students is information technology being regular, efficient, safe, ethical, and does not affect oneself and others. The digital citizenship characteristic for junior high school students consist of five aspects: self-safety and computing, communication to collaborate and create relationships, information utilization, dealing with online bullying and harassment, and ethical use of technology. UNESCO (2016: 15) Donna Young (2015: 9-15) (Mike S. Ribble & Bailey, G.D. 2015)

2. The concept of the flipped classroom is changing the teaching method. Previously, teachers usually send content directly to the students in front of the classroom. Then, teachers teach students through self-learning from video media, outside the classroom, or at home. The normal classroom study is a kind of knowledge search that is gained together with classmates under the supervision of a teacher who assists and guides (Vicharn panich (2013) Bergmann and Sams (2012) McMahon (2012). The principles of the flipped classroom include; 1) a flexible learning environment. The culture of learning in a classroom will change from receiving teachers' knowledge alone to learner-centered learning. Activity time is spent to learn and explore knowledge in depth. This learning environment will create better learning opportunities. 2) Teachers must teach professionally. By clearly defining the objective of learning, and considering the learning objectives for each item. Teachers need to plan what teaching methods should be used, such as taking action, acquiring knowledge, and investigating. 3) Consider what parts of the content should be taught as a broadcast. Teachers need to make sure that learners have access to materials or videos created in that

subject. Learning activities should be organized in such a way as to allow learners take action in the class. Teachers must create a method for testing, assessing learning outcomes, and measuring achievement in a variety of methods. The reason is to assess the learners' knowledge and understanding of each learning purpose. (Christ Helan I, Dr. K. Anbazhagan. 2021)

3. The concept of mobile learning is a self-taught teaching method through courseware that offers content and activities. By teaching through wireless communication network technology, students can access online resources, learn lessons anytime and anywhere. It is also a means of providing information or lessons for the learners. Therefore, mobile learning means extending the scope of normal learning and learning experiences. Mobile learning is learner-centered and plays an integral role in learning through a variety of special features of each type of media in online formats such as social media (Blog, Wikis, Facebook, Twitter), and offline media (video clips, files) Schofield (2011) Chris Evans (2008) (Woolf, B.P. 2010)

4. The teaching model is not just a form of knowledge content transfer using dictation methods for exams only. Rather, the teaching model is used to enable the learner to pursue a specific goal or focus. The teaching model was prepared systematically, and it is composed of philosophical, theoretical, and conceptual schemes. The teaching model can use inside and outside the classroom, and teach individually and in groups. The process of the model will go one step at a time. The steps covering the operations from teaching planning, teaching, measurement, and evaluation of teaching and classroom activities (Tisana Khemmani. 2009, Rathapol Pradubwate, Nutteerat Pheeraphan (2019), Joyce and Weil (1996).

The research framework was summarized from review literature as follows: Figure Research Conceptual (see Figure 1)

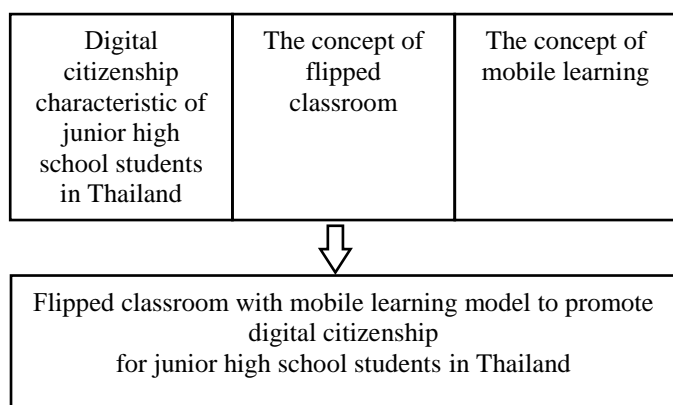


Figure 1. Research

Research Methodology

Participants

Participants for certifying the model: ten experts in promoting digital citizenship in Thailand.

Instruments

1. Flipped classroom with mobile learning model to promote digital citizenship for junior high school students in Thailand.

2. Instruments for studying expert opinion, which examined the suitability and consistency of the instruments. There are two instruments: (a) interview form on the suitability of the components' model, curriculum, knowledge test, self-assessment, and (b) satisfaction questionnaires.

Methodology

The objective of this research is to develop a flipped classroom with a mobile learning model to promote digital citizenship for junior high school students; Thailand in terms of research and development which is as follow: (see Figure 2)

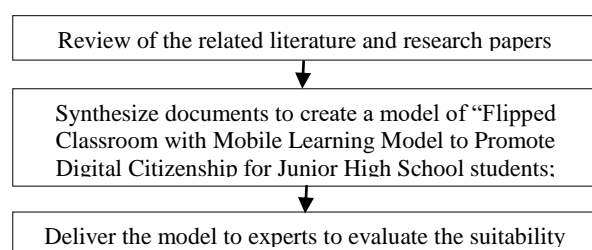


Figure 2. Research process flowchart.

The development of the Flipped Classroom with Mobile Learning Model to Promote Digital Citizenship for Junior High School students in Thailand. The research was conducted as follows:

1) Research papers related to instructional, flipped classroom, and mobile learning for teaching

2) Synthesize documents to create a model of "Flipped Classroom with Mobile Learning Model to Promote Digital Citizenship for Junior High School students; Thailand"

3) Study about the opinions of interview experts on the suitability of the teaching model. Quality assessment of the flipped classroom with mobile learning model to promote digital citizenship for junior high school students. Record form questionnaire data analysis: five-level rating scale.

Analysis

The interviews' results for evaluating the suitability of the flipped classroom with mobile learning in order to promote digital citizenship for junior high school students by five experts found that the experts had an opinion on the suitability at a high level and the model was able to create a form of teaching. The opinion's score is shown in the following table. An analysis of the data in the interview results on the suitability of components and processes of the flipped classroom with mobile learning to promote digital citizenship for junior high school students using the content analysis method and descriptive statistics such as frequency, percentage, and mean.

Results

1. The results of the flipped classroom with mobile learning to promote digital citizenship for junior high school students consisted of 4 elements: 1) roles of students and teachers, 2) learning environment, 3) mobile learning technology, and 4) evaluation. There are seven steps in the teaching process: 1) out-of-class content study 2) preparation for activities in classes 3) awareness-building activity, 4) problem survey, 5) problem formulation, 6) brainstorming, and 7) problem-solving presentation.

Elements

Roles of students and teachers: A learner is responsible for conducting classroom activities and studying the content before attending the class. The learners should be active, express their opinion, and decide to find the most appropriate solution to the problem. A teacher is responsible for resource preparation, facilitate classroom activities, preparation and planning content for learning outside classroom, create an interesting learning atmosphere, encourage learners to participate in activities, as well as monitoring and controlling the activity of learners according to patterns.

Learning environment: A learning environment is conducive to teaching and learning activities in terms of technology structures and setting up an environment for teaching that facilitates learning. Example of learning environment is tools and equipment to support learning, internet network technology, an environment conducive for understanding digital citizenship, creating a fun and interesting classroom atmosphere, and reinforcement during teaching and learning activities.

Mobile learning technology: A smartphone or tablet is capable of accessing the Internet and social media. Mobile learning technology for promoting digital citizenship also serves as a channel for transmitting learning content or information to learners. Mobile learning technology uses various special features of each type of media in online formats (e.g. social media) and offline media (e.g. video clips, files, etc.)

Evaluation: Measurement and evaluation of flipped classroom with mobile learning to promote digital citizenship for junior high school students consist of; (a) achievement test, (b) digital citizenship self-assessment, and (c) satisfaction of learning.

Teaching process 7 steps

The steps of teaching activities according to the model.

- 1) Out-of-class content study by students studying online, of which teachers provide the online learning resources.
- 2) Preparation for activities in classes by discussing the content that student study outside the classroom.
- 3) Awareness-building activity by teachers presenting video clips or online issues and each student propose their opinions, thereafter, the teachers summarize the points from the classroom discussions and link them to the next step of the activity.
- 4) Problem survey by the students divide the group according to their interests, conduct a survey of problems that may arise, and finally study the problem condition.
- 5) Problem formulation entails prioritizing the problem, selecting the most important issues, as well as identifying and presenting the cause and effect for selecting a problem.
- 6) Brainstorming involves students'sourcing information from a variety of perspectives, collecting information from reputable sources, and selecting the best solution.
- 7) Problem-solving presentation using the results obtained from the brainstorming to design a presentation. Students jointly asked questions, provided opinions, and teachers summarized the results from the problem-solving presentation of each group of learners (see Figure 3).



Figure 3. Teaching

2. The quality of the flipped classroom with mobile learning to promote digital citizenship for junior high school students by five experts implied that the experts had an opinion on the suitability at the highest level and the model was able to create a form of teaching. The opinion's score is shown in the following table.

Table 2. Results of model quality

Components of the model	Results (n=10)		
	\bar{x}	S.D.	Level
Roles of students and teachers	4.43	0.53	The most suitability
Learning environment	4.57	0.53	The most suitability
mobile learning technology	4.43	0.53	Very suitability
Evaluation	4.86	0.38	The most suitability
Suitability of The Teaching Process 7 Steps	4.71	0.49	The most suitability
Total	4.60	0.18	The most suitability

Table 2 shows that the model quality was at the peak ($\bar{x} = 4.60$, S.D. = 0.18). The details are as follows.

Discussion

The flipped classroom with mobile learning to promote digital citizenship for junior high school students has developed systematically by synthesis of principles, concepts, teaching techniques, theories related to digital citizenship traits, the flipped classroom, mobile learning, organizing both inside and outside classroom activities, and assessments to determine the elements and processes of the model. Tisana

Khemmani (2009) stated that the teaching model must be organized in a systematic manner that is based on philosophies, theories, principles, ideas, or beliefs. In this research, the experts evaluated the quality of the model at the most suitable level ($\bar{x} = 4.60$, S.D. = 0.18). The elements of the model consist of 4 elements. 1) roles of students and teachers: the learner is responsible for conducting teaching activities in class and studying the content before performing the activities. Teachers are responsible for preparing learning resources, facilitate classroom activities, preparing and planning content for learning outside the classroom. Corresponding to Rathapol Pradubwate, Nutteerat Pheeraphan (2019) stated that learners' role is to conduct teaching activities in the classroom and study the content before participating in the learning activities. Teachers are prepared to study the resources and facilitate classroom activities. 2) Learning environment that facilitates teaching and learning activities in terms of technological structures and setting up a teaching and learning environment conducive for learning. Christ Helan I, Dr. K. Anbazhagan. (2021) stated that learning activities are based on the environment and the learning activities that learners participate in as well as a variety of learning resources, which help learners have a better understanding. 3) Mobile learning technology can access the internet and social media. Mobile learning technology for promoting digital citizenship also serves as a channel for transmitting learning content or information. According to N. Jena, Sameer Shekhar (2020) and Bader Alharbi (2021), teaching methods occur in the classroom by teachers guiding students on materials. Teaching methods outside of the classroom was conducted using telecommunication networks as a mLearning platform. Mobile learning is effective, flexible, and promising. 4) Evaluation is a measure of academic achievement, self-assessment of digital citizenship, and the satisfaction of learning. There are seven steps in the teaching process: 1) out-of-class content study 2) preparation for activities in classes 3) awareness-building activity, 4) problem survey, 5) problem formulation, 6) brainstorming, and 7) problem-solving presentation. When considering the model, there is a process of teaching and learning both inside and outside the classroom, which entails a wide variety of

activities. Allowing the learners to learn by themselves outside the classroom, by submitting learning topics through educational materials that the students can read or view via their own mobile learning devices, support the learners to apply the knowledge gained from outside the classroom as a knowledge base to use in teaching and learning activities in order to promote digital citizenship in the classroom.

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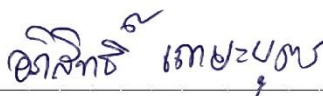
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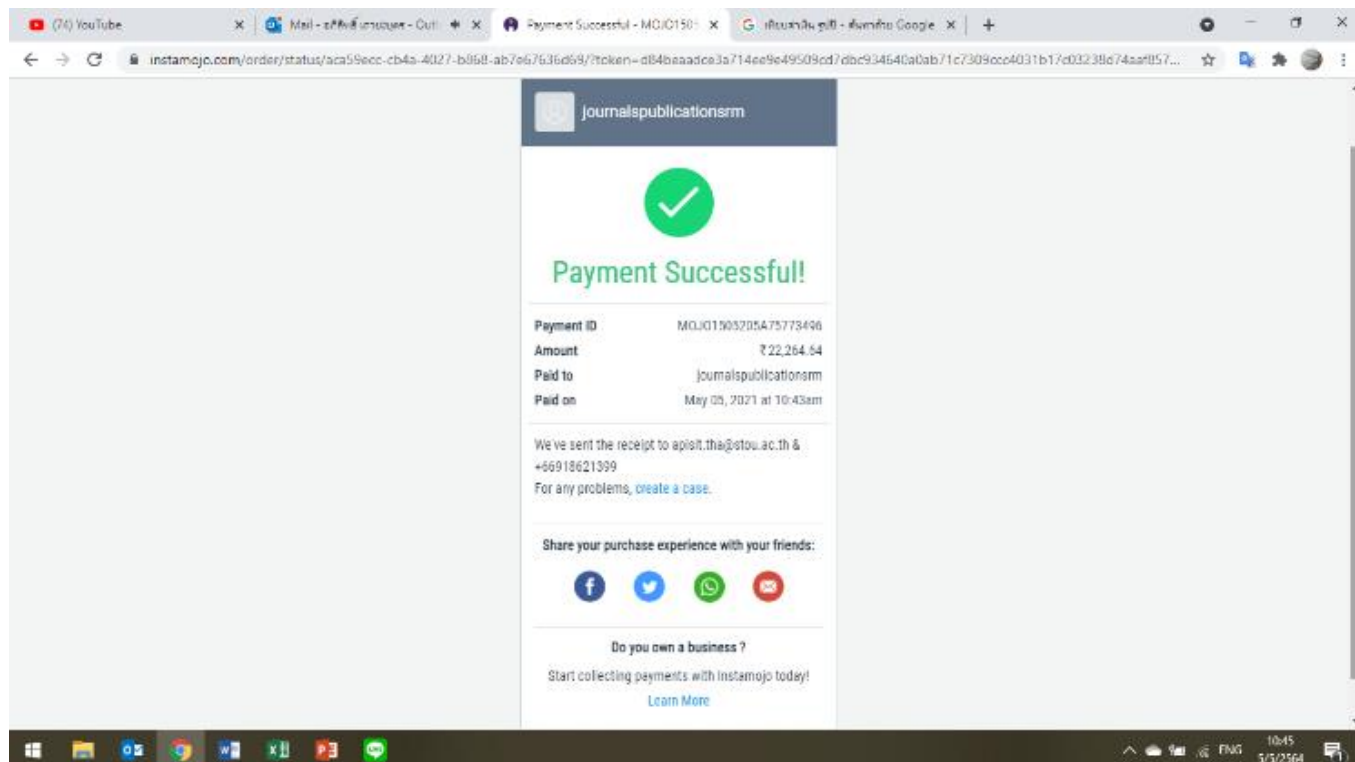
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