



Development of Innovative Learning Models on Massive Open Online Course (MOOC) for Secondary Schools

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Abstract Background and Aim: This research is part of the research project on creation and development of a Massive Open Online Course (MOOC) learning model in order to prepare for learning in a new normal for schools under the Office of the Basic Education Commission. The aim is to study the effect of developing a learning model from the Massive Open Online Course (MOOC) system, which is a research to develop education with research problems to solve learning problems on the spot through the creation and development of learning curriculum by the instructor himself to be in line with the context of the learners. Materials and Methods: This research is a form of research and development, with the sequence of stages of research consisting of the stages of curriculum creation and development. The unit in this research analysis is at the school level, which is taught at the junior and senior high school levels. In the Mahasarakham Secondary Education Area Office, 2 school representatives participated in the project, a total of 70 students using interviews and questionnaires as a tool to collect data. Analyze data by content synthesis and descriptive statistics, mean and standard deviation. Results: The results of the curriculum creation and evaluation of online lessons in the Massive Open Online Course (MOOC) system show that in terms of the development of online lessons, it is stipulated that 1 course or 1 content should have no more than 12 hours of learning by dividing the content into units, each of which has between 1 and 3 hours of learning hours. Each video clip is not more than 10 minutes long, and each course must present the content with other media such as learning activities, reading materials, and other learning resources for at least 65% of the learning hours. The contents were found to be consistent with all issues. Conclusion: Although teaching and learning management operates through modern technological innovations, it must focus on teacher development guidelines to prepare for the development of media and create online lessons. The development direction can be grouped into two areas, including 1) classroom management skills and teaching and learning management and 2) information technology skills. Keywords: Innovative Learning Models, Massive Open Online Course (MOOC), Secondary Schools		

Introduction

The 21st century is a time of rapid change in both the world and the economy. The education system has been replaced by information-driven services. Technology has been developed to increase productivity instead of traditional labor. Currently, both public and private organizations are paying more attention to human resource development to develop the organization to excellence, creating a competitive advantage caused by rapid changes in the era of globalization with information and communication technology as the driving force and development, the era of a borderless world that can communicate and connect all societies together. News Rapid change The general public has more access to the world of information (World Wild Access). Innovation and educational technology are used to increase learners' learning options to develop learners' knowledge and analytical skills.

Synthesize information and news. A model of teaching and learning that emphasizes more individualized instruction. The teaching and learning process changes the role of teachers from being givers. The transmitter is an educational designer to develop people with different learning paths. Many countries in Asia, including Thailand, have begun to introduce new innovations in teaching and learning to increase learning efficiency, especially "Internet" technology.

This importance has resulted in efforts to apply various technologies in education management. Efforts have been made to develop teaching and learning models to be able to support services to



students. Students and reduce various problems that hinder teaching and learning, such as the shortage of teachers. The problem of distance to travel is the problem of time. The problems of communicable diseases and epidemics have caused changes in human education and learning. This change is a consequence of the potential of information technology and restrictions on infection prevention and social distancing to reduce the rate of transmission, such as the COVID-19 pandemic. (Thammetar, 2014; Inprasit, 2009).

Therefore, the Massive Open Online Course (MOOC) is an option that has been used to strengthen knowledge and reduce the learning burden in the classroom. However, the use of MOOC classrooms is still more limited to the general public and university education, so the researcher is of the opinion that the application of MOOC technology and principles opens up learning opportunities for basic education. In addition to reducing the teaching burden of teachers, it also prepares students to get used to online learning in higher education. Therefore, this research project was invented and developed from the high school level under the Mahasarakham Secondary Education Area Office. The goal is to create and develop a Massive Open Online Course (MOOC) to prepare for the new way of life, which will be a workshop for teacher representatives from 8 learning content groups from 35 schools under the Mahasarakham Secondary Education Area Office, which is the educational service area of Mahasarakham Rajabhat University, in accordance with the strategy on producing and developing professional teachers and raising the quality of education to excellence. Content: Quizzes that are online lessons in the Massive Open Online Course (MOOC) system and evaluate the success of the developed courses, which can reduce the learning burden in the classroom and students can use the results from studying in the MOOC system to transfer scores in the courses that are offered for teaching and learning. As a result, students develop self-directed learning activities. Be responsible, practical, and self-evaluating. This is to be a model for new teaching and learning, which needs to be developed in teaching and learning from basic education in schools affiliated to the Mahasarakham Secondary Education Area Office and to transfer the results to other affiliated schools in the future.

Objective

To study the effect of the development using the Massive Open Online Course (MOOC) system.

Literature review

Open education is the expansion of access to educational opportunities and the dissemination of knowledge without the requirement of traditional registration or formal education. Open education is open to people who are vulnerable groups. Whether it is the disabled, people with physical disabilities, people with limited economic status. Those who have to drop out of school or those who live in remote areas with a shortage of teachers and learning materials.

An important advantage of open education is that learners can access knowledge and education anywhere and anytime. Open Educational Resources (OERs) such as teaching and learning materials are either in the public domain or published under an open license that can be accessed and used free of charge (Thailibary, 2019).

Open educational resources (OER) has defined it as teaching, Learning under an open license has been emphasized by scholars and the meaning of open education as follows;

Indraprasit, N. (2008) discussed the meaning and origin of the open approach in the Thai context, saying that the open approach, also known in English as the open approach, is a teaching and learning approach that began for the first time in the mathematics classroom in Japan and today. Which has attracted attention from all over the world. Education in Thailand began with the Mathematics Education Research Center, Faculty of Education, Khon Kaen University, and tried the model of open system education at Suan Amusement Park Municipal School and Khok Si Pittayasan School in the 2002 academic year.

Boonprajak, S. (2014, cited in Putta, N., 2018) has given the definition of an open-ended method to refer to a method of finding a variety of answers and having multiple correct answers. The discussion together showed how to independently learn by yourself. There is a brainstorming to solve



problems together and exchange lessons with each other, which can be used as a guide for learning in a new situation.

Silanoi, L. (2006, cited in Putta, N., 2018) has explained the meaning of the open method as a method of organizing learning activities in the country. The process of organizing activities or situations is characterized by an open and stimulating approach for students to think, which will open up learners' minds so that learners can think independently and diversely, and think as creatively as possible according to the context of the content.

In this research, the concept of an open education system is used as a conceptual framework to design, create and develop online learning courses to respond to the diversity of learners and to reduce learning time in the Thailand 4.0 classroom.

Conceptual Framework

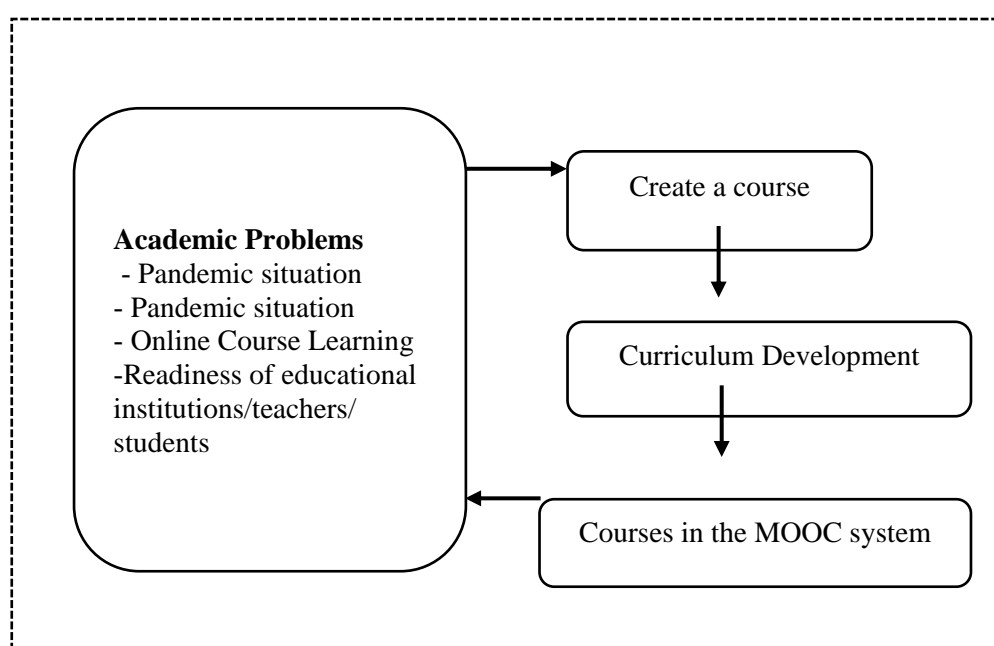


Figure 1. Conceptual Framework

Methodology

The sequence of this research consists of the sequence of stages of curriculum creation and development. The Massive Open Online Course (MOOC) system has carried out a total of 4 steps of the research and development method; (Ekpetch, 2018; Inprasit, 2009).

RA = Research Activity

1) This step will be the process of exploring the school. It focuses on the situation of Classes were organized in the midst of the pandemic situation in the 2020-2021 school year to reflect the problems and needs by using a tool such as a questionnaire on learning behavior and opinions and needs for online learning. At this stage, 35 schools were selected that were willing to participate in the research, and 2 teachers from each school participated in the training, for a total of 70 people.

2) Organized a workshop to create a curriculum. Training on issues related to

- Content Design
- Creating a sequence of content
- Choosing a style of presentation that corresponds to the content
- Creating images and videos of each content
- Content Evaluation Design



- Uploading content to the online space

RO = Research Outcome

- 1) Get the learning curriculum that is created with complete elements.

It consists of content, learning activities, At this stage, it can be some of the content of the course. It is subject to a joint evaluation of instructors and experts, and must pass an audit of the content and technology used by experts, consisting of at least one lecturer from a related discipline per course and an expert lecturer in educational technology.

DA = Development Activity

- 1) It is a process of collecting data and experimenting with the curriculum that has been created and It is used to measure the level of success and effectiveness of the developed curriculum. At this stage, conduct a trial run of the created lesson. The experiment was conducted with secondary school students from participating schools to measure the results of lesson use and test satisfaction.

DO = Development Outcome

- 1) It is a stage of data analysis to distinguish and explain the elements, meanings, and The relationship between the curriculum under the online learning activities, as well as the summary of the discussion and suggestions to report the facts of the research that have been studied in a rational manner, as well as the benefits of applying the research results.

Results

Results of the survey on problems from online learning It was found that online learning behavior in terms of learning readiness covers learning equipment and programs used in learning, and online learning behavior, it turns out that students have their own communication devices used for studying, such as smartphones/computers/tablets or iPads, accounting for 100 percent, but 80 percent have an internet signal at home. In descending order, students were able to ask questions to their teachers and classmates throughout the online learning period. Students can access the programs that teachers use to manage teaching and learning without any problems. And teachers have additional documents such as worksheets, knowledge sheets, and others in addition to online teaching and learning.

"Learning through the system allows students to learn on their own as needed. There is no time limit like studying in a classroom, but the disadvantage is that you need to have an internet connection. And in order to interact with the instructor instantly, it is not possible. As a result, some of the content may have limitations on learning."
Interview with teacher

"Schools should promote and facilitate teachers to produce learning materials to be a source of knowledge. It may be used as a part-time supplementary study in addition to the main study, but I personally believe that learning through the system is not a substitute."
Interview with the school director

"Learning through the system provides integrated learning. I want schools to use learning in the system. With all subjects, they may choose content that is not too difficult and can be learned on their own."
Interview with student

Opinions on online learning problems and needs for online learning overall, it was found that there was a moderate level of opinion. In descending order, it was found that teachers provided good learning support during online learning at a high level and were the same in two areas: students can access online learning anytime and anywhere, and teachers recommend students to attend online classes



or study online from other sources of knowledge such as the websites of training institutions or other departments.

Information obtained from the interview about the opinion of the problem and the need for online learning. It was found that many students were in remote areas and had problems with the internet signal, such as missing or no signal, or sometimes teachers scheduling classes during rainy conditions or climate problems. Affect academic barriers. Therefore, students want teachers to have learning materials or learning channels that facilitate learning according to the readiness of students. In addition, students need modern learning materials and channels that are in line with their learning needs. Students can learn on their own and compare their achievements with the teacher's normal learning.

The results of curriculum creation and curriculum evaluation of online lessons in the Massive Open Online Course (MOOC) system show that in terms of online lesson development, it is required for 1 course or 1 content. Each unit has between 1 and 3 hours of learning hours, and the duration of each course is not more than 6 weeks. Each video clip is not more than 10 minutes long, and each course must present the content with other media such as learning activities, reading materials, and other learning resources for at least 65% of the learning hours. 9 contents were found to be consistent with all issues.

The results of the lesson development and the trial of the developed lesson were carried out with a sample of 30 volunteer learners to learn about the content and practice from the lessons. It was found that from the workshop on curriculum design of the target group of schools affiliated to the Mahasarakham Secondary Education Area Office, there was a high level of satisfaction with the use of the lessons developed in the MOOC system as a whole. Considering the three items in descending order, it was found that the lessons allow students to review the content as desired, at the highest level, followed by the images and videos accompanying the lessons are consistent and suitable for the learning content, and the lessons help to inspire more enthusiasm for learning.

Based on the data obtained from the use of lessons developed and imported into the MOOC system, including data obtained from the satisfaction survey after using the lessons and the data obtained from interviews. It has been used to analyze the content. summarized the issues and reflected the results of teacher development. It was found that the teacher development guidelines to prepare for the development of media and create online lessons. The development direction can be grouped into two areas, consisting of 1) classroom management skills and teaching and learning management, and 2) information technology skills.

1) In terms of classroom management and teaching and learning, teachers must be given the opportunity to participate in classroom management planning by analyzing the core curriculum. School curriculum measurement and evaluation criteria to determine guidelines for overall teaching and learning design, including the development of education management plans, administrative plans, budgets, and monitoring and evaluation plans. Skills and learning management skills and workshops must be organized to find a common approach. In order to manage classes regularly. There is supervision and monitoring, and the environment and classroom are arranged to be conducive to appropriate learning and in accordance with the context of the educational institution. Improve and develop classrooms to have sufficient technological materials necessary for learning management, including educational institutions and educational districts must support and encourage teachers to create modern teaching and learning innovations.

2) Information technology skills must be designed to develop teachers regarding develop technology media to be used in organizing activities according to the teaching and learning process. Educational institutions and district offices must have a plan to review and analyze the use of information technology by teachers. Improve and develop the system. Skill development training activities were organized to respond to learning management and teachers' needs. Taking into account the consistency with the context of the educational institution, there should be a policy to support all teachers to develop themselves. In the field of the use of information and communication technology in the learning management process. Facilitate the supply of materials. Improve the information infrastructure in schools to be ready for teachers' learning management. As well as building a learning network with other educational institutions or higher education institutions in the area.



Discussion

According to this study, both teachers and learners have a positive tendency towards teaching and learning through the MOOC system and believe that learning in this system will promote individual learning skills and potential. Similar to the study of Tinnawas & Thammetha, (2016) who conducted a study on the MOOC online education management model of Thai higher education, it was concluded that the MOOC online education management model of foreign countries has 7 main components: management, system and service, teaching, planning and design, implementation, learning evaluation, curriculum evaluation, and management. The objectives of the seminar were 1) to study the opinions of teachers on open online teaching for the masses, and 2) to study the opinions of teachers on the need to develop teachers for teaching. 3) To develop guidelines for teacher development to prepare for online teaching. and 4) to certify and present guidelines for teacher development to prepare for open online teaching for the masses. It was found that the teachers' opinions on open online teaching for the masses (MOOC). Overall, there was quite a consensus on the use of MOOCs when surveying teachers' opinions on the need to develop teachers for open online teaching for the masses. It was found that at the individual level, teachers have a need for training and measurement. Want to receive guidance and guidance on how to manage online teaching in the form of a mentoring system. At the institutional level, it was found that teachers have a need for professional development from outside and what institutions should consider in the approach to teacher development to prepare for it, consisting of 4 main components: 1) attention to MOOCs technology, 2) awareness of motivation and participation, 3) publicity and fundraising, and 4) evaluation of teaching and courses, and teacher development guidelines to prepare for open online teaching for the masses.

Knowledge Contribution

The creation and development of the Massive Open Online Course (MOOC) education model to prepare for the new era of learning for schools affiliated to the Office of the Basic Education Commission is the application of MOOC technology and principles to open up learning opportunities for basic education.



Mind Map: MOOC Education Model for Basic Education

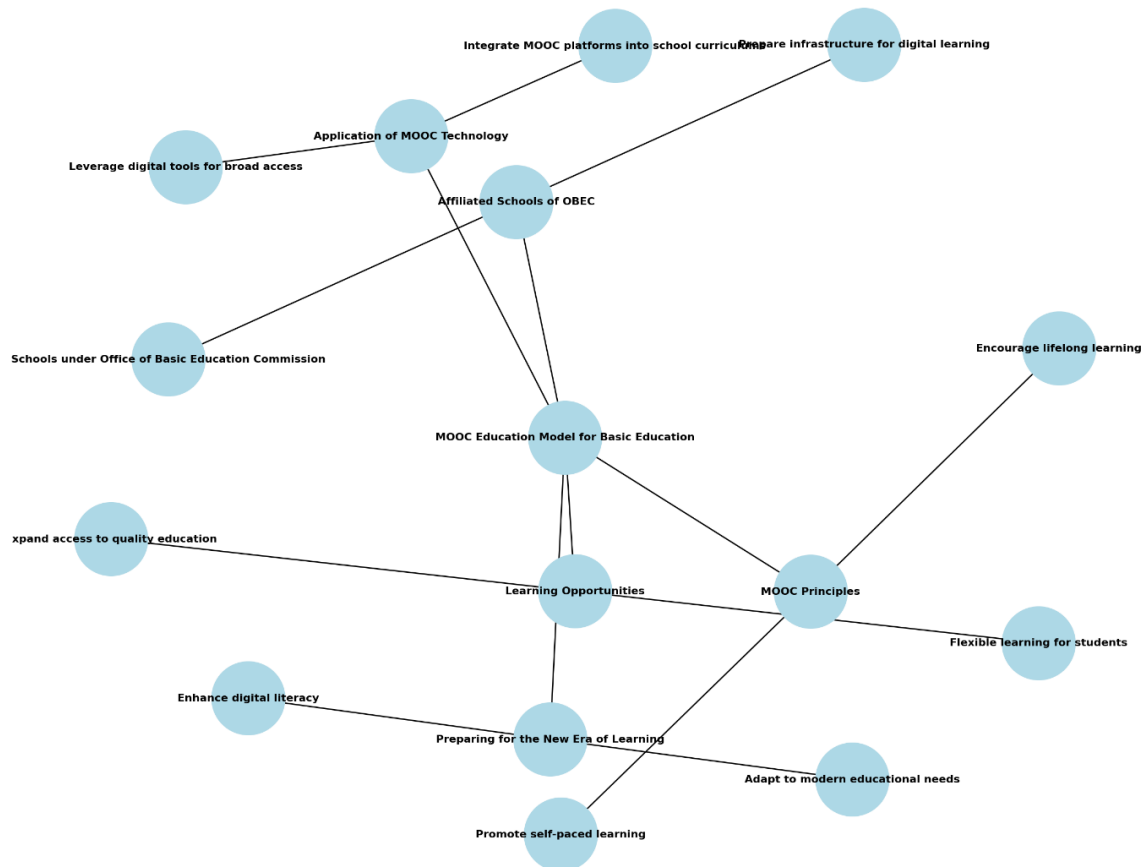


Figure 2 the Massive Open Online Course (MOOC) education model

The creation of the MOOC education model for schools under the Office of the Basic Education Commission (OBEC) is intended to prepare students for the new era of learning. This model incorporates MOOC technology into school curricula, leveraging digital platforms to provide greater access to education. By encouraging flexible, self-paced learning, it allows students to access high-quality educational content regardless of their location. The model promotes lifelong learning and improves digital literacy, meeting the demands of modern education. OBEC-affiliated schools are expected to adapt their infrastructure to support the digital learning transition, ensuring that students are prepared for the changing landscape of education in a technologically driven world.

Recommendation

- 1) The development of personnel of educational institutions should be supported and promoted in developing skills.
- 2) Teachers should be encouraged to use technology and innovation in teaching and learning management, media production so that students can learn at any time. Promotes the ability to learn individually and self-sustainably throughout life.
- 3) Executives should be encouraged to prepare a manual on the guidelines for Design teaching and learning management using innovation and lead to the creation of policies of educational institutions to guide teachers' teaching operations in the same direction and standards.



4) Teachers should be encouraged to develop themselves and participate in management planning. Class open up opportunities for creation and development technological and communication innovation.

5) Encourage teachers to create academic works according to their aptitudes. Policies to promote teachers' ability to develop professional advancement and provide support for media and equipment that facilitate teaching and learning management.

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