

Innovation of Social Studies Digital Learning with Makerspace Approaches for Secondary School Students

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Abstract

Disruption of learning spaces for secondary school students in the digital age results in their learning disruption. Learning has developed significantly due to technological advancement, and online knowledge has considerably been improved. Meanwhile, field learning remains as an essential factor of skill development for secondary school students, and discovery of skills knowledge is not limited in the classroom. New methods and forms of learning for students are developed and provide for learning in digital era. Makerspace digital learning management of social studies constitutes learning space for self-discovery, in which learners will be prepared for real life in the digital era through what is smaller, albeit more motivational, than the classroom. Therefore, this article aims to present the innovation of Makerspace digital learning for social studies, in order to adjust the learning space to correspond with the real society in the digital era.

Keywords: Digital Learning Innovation, Social Studies, Makerspace, Secondary Education.

1) Introduction

Rapid transformation of the global society, particularly advancement of information and lifestyle technology, has contributed to the development of all countries. Thailand is also one of those countries (Adison, 2015), and must acknowledge the transition of global society into the digital world, which consists of the following attributes:

1. Borderless world: data, news, and information are accessible without regional border.
2. Smaller world: travelling and communication become faster, less expensive, and more efficient.
3. Rapidly changing world: human activities become more diverse and more convenient, resulting in increased capability of activities in a day.

Said attributes are the result of an essential reaction: the technology (Nita and Julie, 2017). It is suggested that in this digital era, human will have exciting experiences of the advancement of educational technology, which effectively contributes to the development of pedagogy and learning management.

Therefore, social development to prepare for current transformation of the global society requires attention to the transformation of human, or human capital, into adaptive and competitive citizens.

Similarly, strong network of development stakeholders is also a key to the solution of thinking skills issues for teachers, so that learning management which corresponds to the current affairs is established, and the design of learning management corresponds to modern society and rapidly transforming future, contributing to the reform of educational system. At present, national education system has been improved in accordance with present and future social transformations, which complies with the government policy that intends to reform the educational system to develop Thailand into the learning society, one of the conditions for national and educational development. The purpose of this policy is to produce intellectual capital, and to generate national income (Ministry of Education, Thailand, 2002). Therefore, it is clear that teachers play an important role in learning management in order to enhance their learners with desirable characteristics in a new era, self-development skills, and the balances physical, mental, intellectual, and social attributes through self-learning. This is the reason why teachers are required to prioritize their pedagogy on participation and self-learning skills, instead of conventional pedagogy which concentrates on the teachers themselves (Mangkhang, 2016; Mangkhang, & Kaewpanya, 2021a)

Social studies consist of numerous field of studies, such as geography, history, economics, religion, and civic duties. Due to the integration of various field of studies into one subject, it can be said that this field of study is essential for self-development, and local and national development, because of its relation to daily life, problem solution, and social behavior, which enhance learners with better quality of life. Therefore, social studies teachers are required to establish better quality of life, self-development, and social development by having good attitudes, so that their secondary school students are enhanced with knowledge and comprehension of their society, in addition to problem solution, adaptation, and life skills, all of which contribute to better perception of global changes and happiness (Primary, 2013). Like all subjects, learning management of social studies for secondary school students requires adjustment, as present learning prioritizes the students. Therefore, the learning management should consider the development of the students, and the effects of said learning management. To achieve this, teachers will play a supportive role to promote actual learning for students. The teachers are also required to concentrate on enhancement of their secondary school students with knowledge and skills. Social studies teachers must possess various techniques or methods of learning management, since the content of social studies is more diverse than most of the subjects, and constantly changes over time (Pandee, 2014). Additionally, teachers must adjust their conventional methods learning management, which focus on their students exclusively as learners, to modern methods which promotes learner activities and self-discovery.

This modern learning management method is referred to as “Makerspace”, which gives precedence to digital learning management through practice. Makerspace approaches aims to enhance secondary school students with skills such as planning, analysis, and systematic presentation of activity plans and results, which contribute to diverse thinking, active listening, opinion expression, and self-comprehension (Spisk, 2021). The key factors which contribute to modernization are attitude and vision, which, combining with the adaptation of these factors, enhance the effectiveness of learning inside and outside the classroom. Social studies teachers with these two factors have better perspective of the development of learning management for their learners, and implement modern learning management, the latter of which reflects learning management of social studies in the digital era, in

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addition to the impression of national youth development, by self-reflection of Thai society in the digital era.

Therefore, it can be said that makerspace digital learning management for social studies constitutes adaptive learning management of social studies for secondary students, not only by implementing the technology, but also by applying learning management methods corresponding to current affairs, resulting in the survival of educational systems.

2) Innovation of Social Studies Digital Learning

Various innovations of digital learning for social studies have been developed by various sectors, such as public, private, or even individual sectors who share and apply their knowledge to income generation through both online and offline learning channels specialized for each group of learner. This results in easy access to the knowledge, and optimal skills development. Similarly, private sectors establish their own curriculum as a solution for various organizations, and many domestic and foreign educational institutions have established learning platforms or curriculums, or share the knowledge through online platforms. Examples of learning management of social studies in the digital era include MOOCs, an open learning platform accessible globally. In addition, many online social media and educational media are established to provide access to various knowledge, such as general and specialized knowledge, lifestyle, and numerous field of studies, through platforms such as Facebook, YouTube, Google, Instagram, and podcasts. There are also many educational applications for teachers, secondary school students, and learners of any types, including learning management assistive applications, knowledge application, and AR-ready learning applications (Sitthichoke, Nitsoongnern, 2021). Therefore, application of technology to learning management contributes to better education, such as faster communication between teachers and students, easily accessible data, and creation and publication of digital works.

3) Roles of Social Studies Teachers in Digital Learning Management

Roles of social studies teacher in the learning management of digital era is essential in sense that secondary school students will benefit from such method of learning management more than conventional method, which relies exclusively on knowledge transmission via texts. Marc (2010) suggests the roles of teachers as follows:

- 1. Achievement of learning management goals.** Each student requires instruction, assistance, or support from their teachers. Participation in learning indicates that the demands differ for each student, and the teachers are required to monitor the activities and progress of their students, and support them when necessary. The teachers also need to instruct their students with appropriate methods, such as raising questions, providing suggestions, and monitoring undesirable behaviors of the students. Additionally, social studies should manage indoor and outdoor learning which includes consequences of various actions. For examples, teachers may teach the students about stealing their friends' properties through online media, and arrange the discussion for students.
- 2. Objective and problem identifier.** Identification of the learning objective for students is possible by providing questions for the students. As a result, teachers are required to train their questioning skills by departing from the conventional multiple-choice questions, and enhancing the question

techniques to provide opportunities of discussion and problem solution for the students. This type of learning management is referred to as “problem-based learning”, or “inquiry-based learning”.

- 3. Learning designer.** Teachers are required to provide learning experiences for their students, in order to adjust their behaviors creatively. The process begins from understanding the students, followed by problem design, and suggestion of activities which contribute to comprehension and learning. Such learning management varies depending on the demands and skills of the students.
- 4. Environment manager.** Learning management for each subject varies depending on the context or environment. Teachers must be capable of managing this context or environment in accordance with the contents of the subject, so that students may understand the contents more quickly.
- 5. Supporter.** Another important role for teachers is the thorough quality management. Student evaluation is not limited to scoring of the student works, but also extends to improvement of the work quality.

In conclusion, teachers play an important role in learning management for secondary school students, as indicated by transformation of the global society. Learning management in the digital era depends on the adaptive paradigm of learning management, which consists of learning, design, planning, action, technology application, evaluation, and feedback. Additionally, effects of said learning management, in addition to good learning activities, should also be considered so that secondary school students are capable of adapting themselves to constantly changing technology.

4) Makerspace

Maker Education (ME) and Educational Makerspace (EM) are based on the constructionism, which refers to intellectual creative learning. These methods were developed by Seymour Papert. The concept of these methods states that the best education is the reality-based activities, and teamwork. Most importantly, learning must originate from the students, not teachers. Students should have their own learning guidelines, since there are no two students who have identical understanding and action paces. Many schools intend to promote learning by action, but it is often revealed that teachers remain the knowledge provider, and students the reproducer of said knowledge via projects. Such education cannot be called constructionism, since students have neither opportunities to “create” new things, nor to resolve any issues. A proof of creation and problem solution is thinking process. Maker Education provides students with the opportunity of design thinking, which is associated with complex development and creativity (Saelim, 2017). Therefore, it can be said that Maker Education and Education Makerspace contribute to decision, self-dependence, and problem solution. These methods also constitute the preparation of learners for real world via challenging stimulation. In conclusion, Maker Education is a type of education smaller, but more motivative than the classroom education.

5) Makerspace for Self-discovery

- 1. Destruction:** disassembling and analyzing the functions of each part. This process encourages the students to disassemble the components to learn the details.

2. Discovery: identifying the origin and application of each component. This process provides secondary school students with the opportunity to practice their searching and thinking skills.

3. Design and production: applying the knowledge obtained in the first two steps, in addition to preexisting skills, to the production of a work. In this step, students will be provided with the opportunity to apply their knowledge and develop their creativity.

4. Display: students are provided with the opportunity to present their work and ideas, which contributes to self-confidence and learning from others. These results will in turn provide extensive application in the future (Unkaew, 2017).

In conclusion, if a learner is provided with a learning space and motivation, they will be able to transmit their knowledge through activities, resulting in complete self-discovery in their learning space.

6) Conclusion

Application of Makerspace to the innovation of social studies learning has resulted in better learning management, such as convenient and rapid communication between teachers and secondary school students, easily accessible data, and work creation and publication. Makerspace is a learning management in digital era, in which teachers are required to establish the learning context which the students can interact during their learning, and to evaluate them in accordance with the concepts of learning management in real life, which gives precedence on learning-by-doing in the digital society. The purpose of this learning management is to enhance the students with the ability to plan, analyze, and explain their plans and results. As a result, the students will possess diverse perspectives, hearing skills, opinion reflection skills, and self-understanding. However, Makerspace digital learning management for social studies only predicts the factors that require changes in accordance with the future scenarios, in which methods of learning management of social studies are extremely flexible, and the students are provided with learning spaces and opportunities of self-learning.

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