The Development of Online Lessons with Google Classroom Application on Computer System Operation for Secondary 2 (Grade 8) Students

Yuwamon Prasretsung[1], Naruemon Thepnuan[2]*, Duangkamol Kaewdaeng[3]
[1]*Master of Education (Learning et al.), Faculty of Technical Education,*
Rajamangala University of Technology, Thanyaburi, Academic Year 2022,
[2]*Learning Technology and Innovation, Faculty of Technical Education, Rajamangala University of Technology Thanyaburi.*
[3]*North Bangkok University*
yuwamon_p@mail.rmutt.ac.th[1], naruemon_t@rmutt.ac.th,[2] duangkamol.ka@northbkk.ac.th[3]*

*corresponding author**

Abstract
The objectives of this research were to: 1) develop online lessons with the Google Classroom application on computer system operation for secondary 2 (Grade 8) students; 2) study pre-test and post-test academic achievement; and 3) study the students' satisfaction with the online lessons with the Google Classroom application on computer system operation for secondary 2 (Grade 8) students. The sample consisted of 20 students from secondary 2 (Grade 8) studying computational science at Sappasamit Bamrung Municipal School. They were selected for purposive sampling. The research instruments consisted of online lessons with the Google Classroom application, a quality evaluation guide towards media and content achievement tests, and evaluation forms of students' satisfaction. The data analysis statistics were the standard deviation and dependent sample t-tests. The research results indicated that: 1) the online lessons with the Google Classroom application on computer system operations had the quality of media at an excellent level with an average of 4.58, quality of contents with an average of 4.55, and efficiency criterion of 82/81. 2) The students had an average pre-test score of 17.40, while the satisfaction of students towards online lessons with Google Classroom application is at a high level." post-test was 24.35. The t-test analysis during and after learning was different at .05 statistically significant levels, and 3) students' satisfaction toward lessons with Google Classroom location at a high level of 4.49.
Keywords: online lessons, Google Classroom, computer system operation

Introduction

Learning during uncertain fluctuations like VUCA is crucial, especially during the COVID-19 outbreak. Instructors utilize online applications like Zoom, Google Meet, and Microsoft Teams to facilitate teaching and learning. These real-time tools help organize teaching and learning, ensuring smooth progress amidst societal changes (Suwimon Mathuras, 2021, page 40). Regarding online learning management, Amid the COVID-19 pandemic, the Computational Science course at Sappasamit Bamrung Municipality School observed that the academic year 2021 had an average score of 60.34 percent (Sappasamit Bamrung Municipality School, 2021, page 21). The pupils' academic achievement scores fall below the school's designated aim 65.00. The source of this information is the Sappasamit Bamrung Municipality School, specifically from page 133 of their publication in 2021. The root cause of the issue has been identified. Regarding the COVID-19 epidemic status, as a consequence, it is necessary to arrange the delivery of instruction in an online format based on the designated time slots in the class schedule. Nevertheless, students need more equipment. Please adhere to the designated teaching schedule and continue attending class. The variations among individuals hinder teachers from providing personalized care and assistance to each pupil. Google Classroom is utilized to facilitate online learning by coordinating teaching activities and delivering computer lessons for educational purposes. It serves as a means of communication between students and teachers. Students can utilize computers or internet-connected devices to engage in interactive learning with their teacher through Google Classroom. and pupils among themselves. Google Classroom facilitates creating and minimizing paper for teachers' storage purposes. It features time-saving functionalities. Additionally, it generates directories for each designated individual. Students can track their assignments from the classroom page and begin their work with minimal effort. Teachers can monitor and keep a record of their work. Those who still need to complete their task must do it promptly. In addition, they can offer immediate feedback and deliver classroom outcomes in real time. With your computer, you can work from anywhere and anytime. Or any portable electronic gadget. Thus, learning management is advantageous (Malilai, 2020, p. 5) Based on the considerations, The researcher recognizes the significance of utilizing online lessons through the Google Classroom program to facilitate teachers in managing instruction and learning, including tasks such as content creation, test and worksheet development, and tracking work submission deadlines. Please provide a comment. Efficiently and systematically track the submission of assignments, grading, and learning assessments using Google technologies. This enables the ability to establish connections with students in both educational

institutions and residential settings. Individuals can acquire knowledge independently at any location. Users can communicate with teachers at any time using any device because of the inherent characteristics of online lessons conducted via Google Classroom. This multimedia approach integrates several forms of media to encourage student interaction. Develop a strong passion and curiosity for learning and possess the ability to comprehend material independently. It exhibits a positive response to individual variances. Facilitating efficient acquisition of knowledge has the potential to lead to increased academic performance among kids.

Research of objectives

1. To create online instructional modules using Google Classroom that explain the functioning of computer systems. To achieve optimal results, Students in the second year of secondary school

2. To examine the impact of online lessons delivered through Google Classroom on academic accomplishment in computer system operation, both before and after the instruction. Intended for pupils in the second year of secondary education

3 . The objective is to investigate student satisfaction with online lectures delivered through Google Classroom, explicitly focusing on computer system operation. Intended for pupils in the second year of secondary school

Research of hypothesis

Students who engage in online lessons using Google Classroom learn about the functioning of computer systems. After learning, the academic performance of Mathayom 2 students improved.

Methods for conducting research.

1. Research variables in this study: the researcher has identified the variables that will be examined. The independent variable is online lessons delivered through Google Classroom.

2. Regarding the functioning of computer systems Intended for pupils in the second year of secondary school, specifically in the Mathayom 2 level. The dependent variables encompass academic achievement and satisfaction.

Population and sample

The population is Mathayom 2 students at Sappasamit Bamrung Municipality School, academic year 2022, 2 classrooms, a total of 40 students. The sample group is Mathayom 2/1 students at Sappasamit Bamrung Municipality School, academic year 2022, 1 classroom, a total of 20 students, using the group selection method. Purposive sampling

Research of Instruments

1. Online lessons via Google Classroom on computer system operations.

For Mathayom 2 students, the researcher developed online lessons through Google Classroom with the following steps following.

1.1 Study information about developing online lessons through Google Classroom.

1.2 Study and analyze the curriculum of the Sappasamit Bamrung Municipality School. Science and Technology learning group, subject: Computational Science Mathayom 2

1.3 Study documents and research on developing online lessons through Google Classroom from various sources.

1.4 Design lessons and determine learning objectives for the content that will be used to create online lessons: Topic 1: Components of a computer system. Topic 2: Working principles of computer systems. Topic 3: Application software.

1.5 Take the evaluation form for the consistency index of questions with objectives (IOC) and present it to 3 media experts and three content experts to find the index value. Then, edit and improve the quality assessment form. According to the recommendations of experts

1.6 Present online lessons via Google Classroom to 3 media and three content experts to assess quality. Then, modify and improve according to the experts' suggestions. The experts must evaluate using a 5-level rating scale (Bunchom Srisa-at, 2010, page 82) by specifying the scoring criteria as follows.

A score of 5 and an average score of 4.51 - 5.00 means excellent quality.
A score of 4 and an average of 3.51 - 4.50 means good quality.
A score of 3 and an average of 2.51 - 3.50 means medium quality.
A score of 2 and an average of 1.51 - 2.50 means low quality.
A score of 1 and an average score of 1.00 - 1.50 should be improved.

1.7 Take online lessons through Google Classroom to test with Mathayom 2 students at Sappasamit Bamrung Municipality School. Three people were from different sample groups, with one person each having

good, middle, and weak academic results to check the appropriateness of the content. The language used in the activities, teaching media, and the amount of time spent organizing the activities and taking the defects found to be corrected and improved.

1.8 Take online lessons through Google Classroom to test with Mathayom 2 students at Sappasamit Bamrung Municipality School. A non-sample A non-sample group of 9 people with good, middle, and weak academic results, with three people per group, will be used to recheck completeness and accuracy. The complete online lesson via Google Classroom was then used with the following sample group.

1.9 Take online lessons via Google Classroom to test with 20 students in Mathayom 2/1 of Sappasamit Bamrung Municipality School, who are the sample group. To find the efficiency of online lessons according to the E1/E2 criteria that set the passing criteria at 80/80, the results are equal to 82.00/81.17.

2. The quality of online lessons is evaluated using Google Classroom.

There are two distinct aspects: the media side and the content side. Submit the evaluation form that has been assessed for the level of question consistency with objectives to three media experts and three content experts for quality evaluation. The media quality findings are of excellent caliber. The mean value was 4.58, and the content quality was excellent. It has a mean of 4.55

3. Academic achievement test: Take the test that has passed the index evaluation-the questions should be consistent with the objectives of measurement and evaluation experts. Go experiment with students outside the sample who have already learned this content. Analysis results show that the difficulty value was 0.54, the discriminatory power value was 0.40, and the confidence value was 0.90.

4. Survey of student satisfaction with online lessons via Google.

Classroom The researcher determined the structure of the satisfaction questionnaire as follows: 1. Content aspect, seven questions, 2. Media aspect, 15 question questions, 3. Measurement and evaluation aspect, 5 question questions, and 4. Teaching and learning activity organization aspect, questions. Question 4: Take the satisfaction questionnaire evaluated by the Index of Congruence of Questions with Objectives (IOC) and make improvements according to the recommendations of 3 measurement and evaluation experts to ask about student satisfaction. The sample group had an attitude towards learning with online lessons through Google Classroom. The students were satisfied. At a high level, it has an average of 4.49

Data collection in this research, data collection was carried out according to the following steps:

1. Clarify the objectives and introduce the learning process and the role of the learner in learning with online lessons through Google Classroom so that the sample students understand before class.

2. Test the pre-test with a sample of students using an achievement test. Online lessons via Google Classroom on computer system operations. For Mathayom 2 students

3. Conduct experiments by organizing learning. Online lessons through Google Classroom, where each subject is organized according to the following steps:

3.1 Introduce the lesson by asking thought-provoking questions. In order to prepare students.

3.2 Students study the main content in each subject. The content is presented in the form of exciting documents, pictures, and videos that cover the topics you want to teach in an easy-to-understand, concise manner.

3.3 Learners do exercises to review what they have learned to understand the content better.

3.4 Learners complete challenging activities to summarize essential points in their learned subject.

4. Take the post-test and test it with a sample of students. After studying all three subjects

5. Evaluate student satisfaction with learning online lessons through Google Classroom.

6. Summarize the research results according to the objectives. Benefits Discussionการ

Analyze data.

1. Find the quality of online lessons through Google Classroom regarding media and content. Data were analyzed using averages. And standard deviation

2. Find the efficiency of online lessons through Google Classroom according to the standard 80/80 using the efficiency formula E1/E2.

3. Compare achievements before and after studying with the Dependent t-test at the significance level of .05.

4. Satisfaction of Mathayom 2 students with online lessons through Google Classroom that are learned with online lessons through Google Classroom. Data were analyzed using averages. Moreover, standard deviation Criteria for interpreting average results Set the score value as a 5-level rating scale (Bunchom Srisa-at, 2010, page 82) using the scoring criteria and the following criteria for interpreting the values: A score of 5 and an average between 4.51-5.00 means that there is the highest level of satisfaction.

A score of 4 and an average between 3.51-4.50 means high satisfaction.

A score of 3 and an average between 2.51-3.50 means satisfaction is moderate.
A score of 2 and an average between 1.51-2.50 means low satisfaction.
A score of 1 and an average between 1.00-1.50 means satisfaction is at the lowest level.

Research results.

1. Results of the analysis of the quality of online lessons through Google Classroom evaluated by the quality of media experts are excellent, with an overall mean of 4.58 and a standard deviation of 0.32. Screenshots of online lessons via Google Classroom on computer systems operations. For Mathayom 2 students

Figure 1: Screenshot of an online lesson via Google Classroom on a smartphone screen.

2. The results of a quality analysis of online lessons via Google Classroom, assessed by content experts. The quality is excellent, with an overall mean of 4.55 and a standard deviation of 0.42.

3. The analysis results to determine the efficiency of online lessons through Google Classroom were 82.00/81.17 effective, in line with the set standard 80/80 criteria.

4. A comparison of achievements before and after learning from online lessons through Google Classroom showed that the average score after studying was 24.35 points, higher than before. The average score before studying was 17.40 points, with a statistical significance 0.05.

5. The results of the study of the satisfaction of the sample students found that the students were overall satisfied with the online lessons through Google Classroom at a high level. It has a mean of 4.49 and a standard deviation of .05.

Discuss the results

Research on the development of online lessons through Google Classroom on the operation of computer systems For Mathayom 2 students this time, it was found that the development of online lessons through Google Classroom enabled teachers to manage their classes systematically. Google Classroom is an application. That can be accessed on various devices such as computers, tablets, and smartphones. Using Google Classroom is relatively easy for learners of all ages. Students will be familiar with it When they have used it for a while. More clarity in using it. Using online lessons through Google Classroom to help organize teaching and learning. It makes students more interested and enthusiastic in learning. They were not bored studying, just like when studying in a classroom.

This is because studying in an average classroom has limited time. More hands-on practice is needed, causing students to pay attention to learning less than they should. Observe from sending work regularly. Exchange students show their work to their friends. Moreover, they have received praise from classmates and instructors. Make students feel proud and believe in themselves. Learners can review content and do exercises according to their needs anywhere and at any time. This reduces the pressure and stress of studying. When students do not understand, they can ask the teacher even outside of class time because Google Classroom can express opinions and interact with each other immediately. Students and teachers or students and students can exchange knowledge with each other at any time. It reduces the gap between people. As a result, the student's learning achievement will be higher, in line with Supaset Phuengbua (2019, page 107), who said that teaching online lessons subjects to the Google Classroom application for Mathayom 1 students. Students are interested and enthusiastic in the lesson.

Because there are images with accompanying content, which does not make students bored quickly and understand the lesson more easily, when studying each chapter, check the answers. It makes you proud and more enthusiastic. It helps students gain confidence in studying and taking tests. When you practice it often, you will develop more skills and understanding, helping to develop teaching and learning continuously. It encourages students to be interested in performing activities and submitting work regularly. There is time to review the lesson to enhance the skills in the learning process further. The results are discussed according to the objectives and assumptions of the research as follows.

1. Online lessons via Google Classroom on computer system operations. For Mathayom 2 students, the media quality is excellent. The average value was 4.58, and the quality of the content was excellent. The average value was 4.55, and the efficiency was 82.00/81.17, according to the criteria set for 80/80. The researcher carried out the work. Develop and design online lessons through Google Classroom, which divides the content into three topics: computer system components, Principles of operation of computer systems, and application software by learning standards and indicators. Science Learning Group (Revised Edition 2017) According to the Basic Education Core Curriculum, B.E. 2008 (2017, page 123), online lessons through Google Classroom are suitable for teaching and learning. It is a teaching medium that can be accessed anywhere, anytime. Able to communicate immediately. Content presentation is in the form of multimedia. Content linking is flexible. Learners can access the content they want to repeat as needed. Make students enthusiastic and interested in learning on their own. Make online lessons through Google Classroom effective in organizing teaching activities. Consistent with the research of Phuwadej Samphawaphon (2019, page 92). The research found that online lesson development regarding the creative use of social media for Mathayom 3 students, by analyzing the efficiency from actual use, the efficiency values were 81.08/82.81, higher than the set criteria of 80/80.

2. The research found that students' academic achievement after studying is higher than before studying. The average score was 17.40 with a standard deviation (SD.) of 2.91 after the students learned from online lessons through Google Classroom, did activity exercises, and tested the students after studying. There was a mean score of 24.35 with a standard deviation (SD.) of 2.50. The t-test analysis between before-study and after-study was 13.90. There was a statistically significant difference at the 0.05 level, consistent with the research of Supasate Phuengbua (2019, page 104) who researched the topic of Online lesson development Internet subjects with the Google Classroom application for Mathayom 1 students. It was found that academic achievement after studying was higher than before, with statistical significance at the .01 level.

3. The research found that the analysis of the students' satisfaction levels after studying was the same. On were the samesons via Google Classroom on computer system operations. For Mathayom 2 students, students were at a high level of satisfaction. The average value was 4.49 because the students were able to practice. Has worked systematically. Practiced learning skills and created knowledge by yourself. Because the online lessons are through Google Classroom, it is possible to review the content and practice making worksheets according to the needs of the learners, anywhere and at any time, appropriate to the current situation. It is convenient to submit work and can help students receive immediate feedback. Can express opinions and interact easily and quickly. It is easy to use. Each subject has a step-by-step learning design and a straightforward learning process. There are worksheets and activities to practice in a variety of formats. Content placement Pictures are in the knowledge sheets for online lessons. They are appropriate and colorful. The accompanying video for each story corresponds to the content. This aligns with the research results of Supaset Phuengbua (2019, page 104), who researched the topic of Online lesson development Internet subject with the Google Classroom application for Mathayom 1 students. It was found that students' satisfaction with their studies after studying at the highest level.

Suggestions

Suggestions from research

1. Teachers should understand with students the reasons for organizing teaching with online lessons through Google Classroom. The steps for learning online lessons through Google Classroom should be explained to students before starting class. In order to avoid confusion in the students' practices. Because there are differences between people, learners should be determined. Honesty and responsibility are essential.

2. Due to access Online lessons via Google Classroom must be accessed through an internet-compatible device. Teachers must consider whether students' access is convenient or not.

Suggestions for next research

1. The results of this research should be used to improve school curricula in the learning content group. Science and technology Keep it up-to-date and appropriate for current events.

2. Teachers of each subject should be encouraged. Develop online lessons through Google Classroom as teaching media. Giving students a variety of learning resources

3. To make online lessons more interesting, they should be developed through Google Classroom and integrated with other online media outside of the application. The content, exercises, and research sources should also always be updated.

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