A COMPARATIVE STUDY OF ACADEMIC ACHIEVEMENT AND SATISFACTION IN SOCIAL STUDIES OF GRADE 9 STUDENTS UNDER GAME-BASED AND TEACHER-CENTERED LEARNING METHODS AT SATRIWITTHAYA 2 SCHOOL, BANGKOK, THAILAND

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Abstract: This study aimed to determine academic achievement and satisfaction between Grade 9 students under Game-based learning and Teacher-centered learning methods at Satriwitthaya 2 School, Bangkok. The participants of this study were 60 students from Grade 9 who were studying with game-based and teacher-centered learning methods at Satriwitthaya 2 School, Bangkok. This study was a comparative study research design. In addition, a questionnaire from developing teaching games with computer systems for conversion based on a computer mathematics course at the vocational certificated students. This study analyzed descriptive statistics (means and standard deviations) and comparative analysis independent samples *t*-test (2-tailed). This study found that Grade 9 students' academic achievement taught by game-based learning was higher than Grade 9 students' academic achievement taught by teacher-centered learning. Furthermore, there was a significant difference between Grade 9 students' academic achievement taught by game-based learning method and those taught by teacher-centered learning method. The satisfaction for game-based learning was 3.95, and for teacher-centered learning, the method was 3.65, which was interpreted as high.

Introduction
Social Studies course originated in the 19th century, 1916, in the United States.

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The basic curriculum improvement committee has organized a new category. Namely, Social Studies subjects consisting of History, Geography, and Democratic Problems in the later stages of social studies include economics and citizenship (Kanok, 2016), and the core curriculum of basic education, BE 2551, addresses the reasons for studying social studies and more religion and culture that the global society is changing all the time rapidly. Social Studies, Religion, and Cultural subjects provide learners with knowledge and understanding of how humans live as individuals and coexistence in society. Environmental adaptation and limited resource management also helps learners understand the evolving developments. Time according to various factors, creates an understanding of oneself and others, tolerance, tolerance, acceptance of differences and virtue, able to apply knowledge to life. Be a good citizen of the nation and the world society.

Research Objectives
1. To determine the levels of academic achievement for social studies of grade 9 students from the pre-test to the post-test of game-based learning method at Satriwitthaya 2 School, Bangkok.
2. To determine a significant difference in academic achievement for social studies of grade 9 students from the pre-test to the post-test of game-based learning method at Satriwitthaya 2 School, Bangkok.
3. To determine the levels of academic achievement for social studies of grade 9 students, the pre-test to the post-test of teacher-centered learning method at Satriwitthaya 2 School, Bangkok.
4. To determine a significant difference in academic achievement for social studies of grade 9 students from the pre-test to the post-test of teacher-centered learning method at Satriwitthaya 2 School, Bangkok.
5. To determine a significant difference in the gain of academic achievement in Social Studies from the pre-test to the post-test between Grade 9 students taught by game-based learning methods and those taught by teacher-centered learning method at Satriwitthaya 2 School, Bangkok.
6. To determine the level of satisfaction in Social Studies among Grade 9 students taught by game-based learning methods and those taught by teacher-centered learning methods at Satriwitthaya 2 School, Bangkok.
7. To determine a significant difference in satisfaction in Social Studies from the pre-test to the post-test between Grade 9 students taught by game-based learning methods and those taught by teacher-centered learning method at Satriwitthaya 2 School, Bangkok.

Literature Review
Three theories as mainly theoretical support to current research and studies on perceptions of game-based and teacher-centered learning methods are

briefly presented as follows.

Conditional Learning Theory
The teaching and learning model in which the teacher plays an important role in preparing the content and controlling the teaching process. The name is used to refer to the teaching model in this group. Often referred to as teaching styles such as direct instruction model and concept teaching model. Skinner's conditional learning theory. Skinner has the idea that Learning occurs under the right conditions and environment because this theory wants to focus on the environment. Support and punishment Skinner considers human behavior behavioral to one's environment. Human behavior will persist forever. Require reinforcement and includes both positive reinforcement and negative reinforcement.

The teacher-centered approach relied on the behaviorist theory, which was based on the idea that behavior changes are caused by external stimuli (Skinner, 1974)

Game-Based Learning Theory
Game-Based Learning is the use of psychology related to motivation as a base for games by allowing students to engage with educational media through play and uncertain formats. It does not mean creating games for students to play. Game-Based Learning is the use of game elements in designing learning activities that can add concepts and a better understanding of content in the classroom.

Satisfaction
The theory of satisfaction is the theory of two kinds of human feelings: positive ones. And negative feelings, all kinds of feelings of humans, must belong to both groups of these feelings. Positive feelings are felt when they occur. Also, it will create happiness; this feeling is different from other positive feelings. It is a feeling that has a reverse system which leads to more happiness or positive feelings. Happiness is a complex feeling. And this happiness will affect more people than positive feelings. Other negative feelings, positive feelings, and happiness are intricate relationships, and the relationship system of these three feelings is called the satisfaction system. Satisfaction will occur when there are more positive feelings than negative ones. Satisfaction can be expressed through various positive feelings, which can also help increase your satisfaction. (Shelly, 1975)

Conceptual Framework

The following objectives were addressed in this study
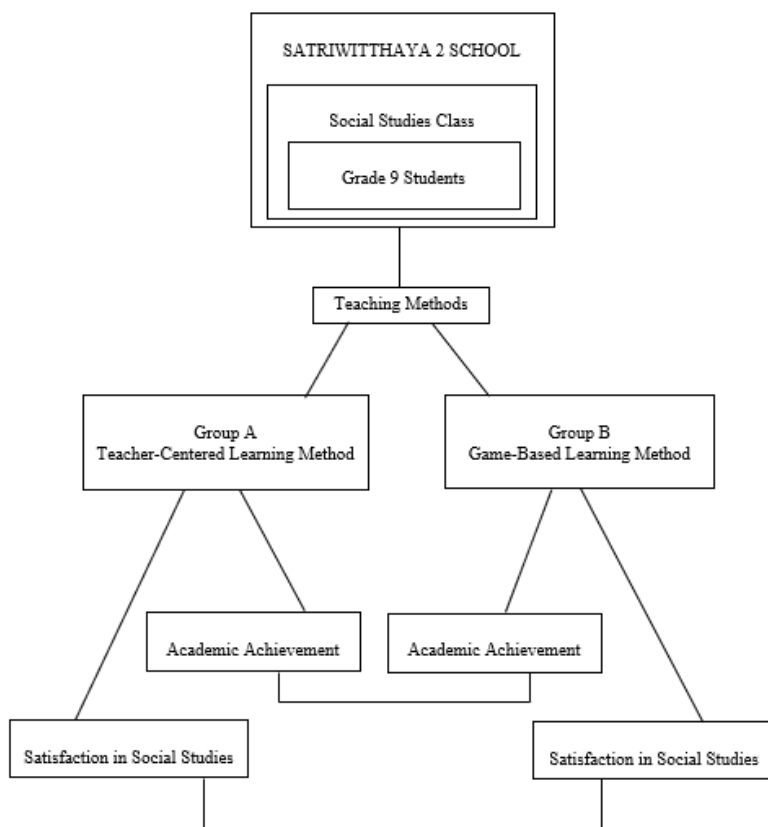
Figure 1. *Conceptual Framework*

Methodology/Procedure

Population and Sample

In this research, students in Grades 9 at Satriwitthaya 2 School, Bangkok were used purposive sampling. Students are studying in the academic year 2020. There were two classes students divided into two classes. First, Grade 9/13 was 30 students, and second, Grade 9/15 was 30 students. The sample was 60 students in total.

Research Instruments

The first instrument was a test. The pre-test was given to the students before teaching, and the post-test will give to students at the end of the process. The test including by 40 items and two short essays. All the questions in the tests were selected to correspond to the information in the school social studies

book. The assessment measured the knowledge dimension ability displayed by the students' knowledge, comprehension, and analysis. The pre-test and post-test used in the study were reviewed and approved by three experts but used an index of item objective congruence (IOC), and the result is 1.00, meaning the exam is accurate and can be used. Lastly were two short answers using the rubric for a score, and it was reviewed and approved by three experts. The second is the satisfaction questionnaire. This research also used a satisfaction survey to determine the level of satisfaction with instructional methods. The Satisfaction questionnaire survey was composed of 15 items using a five-point Likert scale. All the questions in the satisfaction were selected from the developing teaching game with a computer system for conversion based on computer Mathematics course for the vocational certificated students. (Patcharapun, Prawit, and Pongtorn, 2013)

Findings
The findings regarding each research objective are summarized as follows.

Research Objective 1
It was found that Grade 9/13 students' academic achievement, when taught by the Game-Based learning method, was under passing scores in pre-test and post-test. The interpretation from the post-test was excellent.

Research Objective 2
In Grade 9/13, there was a significant difference in academic achievement between pre-test and post-test.

Research Objective 3
It was found that Grade 9/15 students' academic achievement, when taught by Teacher-Centered learning method, was under passing score in pre-test and post-test. The interpretation from the post-test was good.

Research Objective 4
In Grade 9/15, there was a significant difference in academic achievement between pre-test and post-test.

Research Objective 5
It was found that the comparison of students' academic achievement in Grade 9/13 taught by Game-Based learning method and Grade 9/13 taught by Teacher-Centered learning method were analyzed using an independent *t*-test. There was a significant difference between the two groups at .0.5.

Research Objective 6
It was found that Grade 9/13 students' satisfaction, when taught by the Game-Based learning method, was 3.95, and Grade 9/15 students' satisfaction, when taught by Teacher-Centered learning method, was 3.65. The interpretation from satisfaction Grade 9/13 and Grade 9/15 was excellent.

Research Objective 7
It was found that the comparison of students' satisfaction in Grade 9/13 taught by Game-Based learning method and Grade 9/15 taught by Teacher-Centered learning method were analyzed using an independent *t*-test. There was a significant difference in student satisfaction between the two groups at .0.5. Grade 9/13, taught by a Game-Based learning method, was significantly more satisfied with the instruction method than Grade 9/15.

Discussion
This section discusses the findings of this research by relating them to the findings of previous research studies. It also presents the analysis for this study from the perspective and observation of the researcher.

Academic Achievement
This study aimed to examine students' academic achievement in Social Studies of Grade 9 students under Game-Based and Teacher-Centered learning methods at Satriwitthaya 2 School, Bangkok. The mean score of Grade 9 students' academic achievement under the Game-based learning method was interpreted as excellent. On the other hand, the mean score of Grade 9 students' academic achievement under the Teacher-Centered learning method was interpreted as good. Regarding the results, these two groups of students were taught by different learning methods. Accordingly, Game-Based and Teacher-Centered learning methods impacted the academic achievement of Grade 9 students in Social Studies. In addition, the Game-Based learning method impacted students' academic achievement more than the Teacher-Centered learning method.

Sakul (2007) constructed research on the achievement of learning media Game-Based learning the study of the effectiveness of Game-Based learning approach. This research is experimental research by a sample group used in the study of human resource development human resources and organization development program of the graduate institute of development administration. The sample is divided into two groups. The experimental group will receive learning by using Game-Based learning as a learning medium, and the control group will be taught by lecture method.

Study results format as a list;

1. The experimental group had a feeling of learning when they learned that they would learn by using games as a medium, while the control group felt dormant when they learned to learn in a lecture style.
2. The level of knowledge in terms of memory and understanding of the experimental group is higher than the control group.
3. The experimental group agreed that they were highly involved in learning. While the control group found that they had little participation in learning.
4. The experimental group agreed that the game caused them to learn by themselves.
5. The experimental group felt it was fun to learn all the time. While the control group felt indifferent or did not enjoy learning.

This is because of the gameplay. In addition to getting the knowledge fully, it also makes it fun. Excited about the action of the game. That is carried by new methods and is a game that can be used to practice a wide variety of skills, including having fun playing the game with friends and working with others simultaneously.

Therefore, researchers strongly believe that learning by using games can help students become more active in learning or performing classroom activities over a period of 6 weeks. Excellent development and cooperation in various activities and fully ready to learn in each class.

Student Satisfaction
This study aimed to examine students' satisfaction in Social Studies of Grade 9 students under Game-Based and Teacher-Centered learning methods at Satriwitthaya 2 School, Bangkok. The mean satisfaction scores were those taught by Game-based learning methods, and those taught by Teacher-Centered learning methods in both groups of students had high satisfaction scores. However, the satisfaction analysis of students indicated that the satisfaction level of the students who underwent Game-Based Learning was significantly higher than the Teacher-Centered learning method.

The more students in the Game-based learning group had more fun in social study class. This can be seen from the increased enthusiasm for the lessons and more focus. In Teacher-Centered learning groups, most of them take notes and listen to lectures only. This display clearly can be seen in students in the Game-based learning group. Their satisfaction with the teaching and learning using games was 3.95, indicating that they were more satisfied with their learning than the Teacher-Centered learning group, with satisfaction at 3.65 being lower than the Game-based learning group. Regarding the previous

study, it is a study of Developing Teaching Game with Computer System for Conversion among Base on Computer Mathematics Course at the Vocational Certificated Students (Patcharapun, Prawit, and Pongtorn, 2013). This study conducted a satisfaction assessment of learners by the satisfaction questionnaires of the overall average was high level and found that Game-based learning methods impact students' satisfaction.

In conclusion, the students in the Game-based learning group had a higher level of satisfaction because of using games in the management of teaching and learning in social studies for Grade 9 at Satriwithaya 2 School, Bangkok. As a result, students have shown an increase in academic achievement, and researchers believe that Game-based learning can develop learners to extend their learning knowledge endlessly.

Recommendations
Recommendation for Students
This study exposed Grade 9 students taught by Game-Based and Teacher-Centered learning methods at Satriwitthaya 2 School, Bangkok. They had an excellent level for Game-Based learning methods and a good level for Teacher-Centered learning methods. Lastly, student satisfaction found that both were high. The finding of this study can be applied to social studies for grade 9 students at Satriwithaya 2 school. Students prefer Game-based learning over Teacher-center learning or only lecture during class. Therefore, the researcher recommends using this type of teaching management in learning. To help students entertained for a long time during their learning and motivate them to learn and improve their learning in academic areas, and be able to seek self-knowledge to further develop themselves.

Recommendations for the Teachers
Teachers should use Game-based learning in class to help improve student academic achievement. In addition, it is important to study more to improve the game patterns to keep up with the situation at that time and for efficiency in teaching school management and still need to emphasize the content that must be complete and correct according to the standard of the course indicators.

Recommendations for the Future Researchers
The conducting of this research is a comparative study of academic achievement and satisfaction in Social Studies of Grade 9 students under Game-Based and Teacher-Centered learning methods at Satriwitthaya 2 school, Bangkok. The results of this study can be concluded learning methods impact students' academic achievement. However, the high volume of lesson

content requires learners to spend a lot of time learning and doing fast-paced activities to complete within a limited time. According to this study, future research should consider the appropriate timing and content of the lesson to facilitate the implementation and evaluation effectiveness. These variables could be modified in future research to correct the academic achievement shown in this study. Surveys in areas other than social studies can be performed to compare outcomes of similar audiences.

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