

DEVELOPING OF CRITICAL THINKING SKILL OF THE EFFECTIVENESS OF LATITUDE LINE TO THE WORLD CLIMATE BY USING THE EDUCATIONAL GAMES FOR MATTAYOMSUKSA 3 STUDENTS IN DEMONSTRATION SCHOOL OF SUAN SUNANDHA RAJABHAT UNIVERSITY

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ABSTRACT

The purposes of this research were to study Critical Thinking Skill of The Effective from Latitude Line to The World Climate by using the educational games and to compare students' critical thinking skill results by using the educational games between pre-test and post-test. The sample of this research was 28 of Mattayomsuksa 3 students who were studying in semester 1 of academic year 2022 in Demonstration School of Suan Sunandha Rajabhat University. The sample was purposive sampling. Due to most of students are lack of critical thinking skill, research tools were card game activities and post-test. The data were analyzed by using mean and standard deviation. The findings show that students' critical thinking skill were better and their testing result from the post-test after card game activity were pass at the 14.82 level of mean and the 2.28 level of standard deviation, and the result for the compare students' critical thinking skill before learning were not pass at the 6.86 level of mean and 2.07 level of standard deviation.

Keywords: Critical Thinking, Latitude Line, Climate, Educational Games

INTRODUCTION

Our world has different climate characteristics. We use latitude lines to divide climate lines. The tropics divide our hemisphere into Two parts: the Northern Hemisphere and the Southern Hemisphere, the temperate zone, and the cold zone. Both parts have the Northern Hemisphere and the Southern Hemisphere. Today, our world is changing rapidly. Mr. Somporn Wichit and his team (2015: summary) said Climate change and change will affect agricultural productivity and household income. Future food security, farmers' life, including the overall lifestyle, and Uma Langkulsen and Nanthawan Wichitwatakarn. (2018: Abstract) Climate change is a global problem that affects every country. Scientific evidence shows that the main impact of climate change is global warming. (Global warming) and Amun Linsaku (2020-1) said that climate change is a complex global issue, closely related to many issues. The Ministry of Education has become the main concern of the international community in its joint efforts to seriously address this issue. Amendments to the National Education Law B.E.2542 (1999) and No. 4 B.E.2562 (2019) The guidelines for education management have been formulated, which must adhere to the principle that every student can learn and develop his/her own ability. Students are the most important in education management and must be encouraged to develop according to their potential and ability. (Ministry of Education, 2003: 8) Geography core learning indicators and materials (revised in 2017) define climate as geography theme 5. Indicator S 5.1 M.3/1 North American Physical Analysis and South America, using specific map and geographic search tools and Sor 5.2 M.3/1 to explore and locate Economic and social activities in North and South America. Learning management of such subjects in addition to providing

students with basic knowledge in this area. Students need to have critical thinking skills to apply knowledge to higher levels of learning and develop their skills. Learner in another way.

The Demonstration School of Suan Sunandha Rajabhat University is under the supervision of Suan Sunandha Rajabhat University and the Ministry of Higher Education, Science, Research, and Innovation. of the Ministry of Education Open teaching and learning from Mattayomsuksa 1 to Mattayomsuksa 6, from the practice of teaching social studies subjects. At the level of Mattayomsuksa 3 on the topic of geographical characteristics of different regions of the world, it was found that most students were unable to separate climate zones. of different regions of the world. In addition, students lack knowledge and understanding about climate dividing lines. to analyze the characteristics of the world's topography and test results in the subjects of the target group when studying at the level of Mattayomsuksa 2, at a level that does not pass the criteria by analytical skills problems It is one of the problems that target students should be addressed because students will not be able to analyze, differentiate and distinguish the importance of imaginary lines.

The study found that educational games are learning activities in a form of learning management. Emphasis on the learner-centered to enable learners to acquire different learning process skills depending on the process. And the learning objectives of the game on what areas they want to develop learners. Supachai Tansiri et al. (2010: 165) stated that teaching methods using games are methods that help learners learn different stories. According to a research on the active learning strategy cited "Active Learning is a learning and teaching process which is learning through practice or action" (Khankham, Raweewan, & Sudarat, 2020). It implies that learning has more effective results when it includes more active activities than a plain lecture class. Thus, fun and challenging their abilities by the students as players themselves making it possible to gain hands-on experience as a method that allow students to participate in learning management at a high level Chaiwat Suthirat (2018: 439) It has summarized the nature of the learning management of such techniques as it is the nature of teaching games. The objectives, rules and regulations for playing are clear, easy to understand, the content and duration of playing must be suitable for the goals and level of the learners. Students should participate in activities thoroughly. get fun and attract attention in learning in addition, games are still one of the activities that students are interested in. And when it comes to the word game, students will feel more inclined to approach it than other forms of learning management. Educational games are games that simulate reality. real situation in which players must think and make decisions from the available information and get the results of their decisions exactly as they should be received. with teachers and personnel 366) has said that educational games are games that simulate reality. real situation in which players must think and make decisions from the available information and get the results of their decisions exactly as they should be received. with teachers and personnel 366) has said that educational games are games that simulate reality. real situation in which players must think and make decisions from the available information and get the results of their decisions exactly as they should be received. with teachers and personnel Many educational institutions use the concept of educational games in teaching and learning, such as Liberte. French Revolution power struggle by Martin Wallace, brass Birmingham – Pax Pamir industrial revolution game, Central Asian politics game, Gentes civilization game in the early days of humans (Fringer on Board Games, 2018: Online) From the example, it can be seen that educational games are learning management processes. One form that focuses on making learners have fun together with gaining knowledge. which learning management by using games Education can develop learners in many contexts depending on the learning objectives in each game. In what ways do students develop? And nowadays, learning management by using educational games has come out too many societies. From the research results of Prayoon Julmuang (2009: 57) The development of teaching and learning activities using games to promote critical thinking skills Geoeconomics course of

vocational certificate students in the second year of Khon Kaen Technical College. Promote analytical thinking skills. The results of the final test of the 1st cycle had an average score of 80.25 percent and the number of students who passed the criteria accounted for 75 percent of all students. The results of the final test of the second cycle had an average score of 82.50 percent and the number of students who passed the criteria accounted for 85 percent of all students. The results of the final test of the third cycle had an average score of 88 percent and the number of students pass Criteria accounted for 100 percent of the total number of students. From the test results at the end of all 3 cycles, it can be seen that Students develop progressively more analytical thinking when they are given experiences using games to promote. Kritnay analytical thinking skills Chumwuttisak (2015: 117) have studied development of analytical thinking skills and attitudes towards citizenship in accordance with democratic ways Learning Unit: Good Citizenship in Democratic Ways, Subject S 15101, Social Studies 5, Prathomsuksa 5 Level, using a game-based teaching model, it was found that students had scores for analytical thinking skills using a game-based teaching model that passed the criteria. There are 9 people, representing %81.82 with an average score of 14.09, representing 70.45 percent, which passed the specified criteria. and the research results of Ms. Rakchon Phuttarangsi (2017: 114) have studied Application of board games for acting skills from the research results, it was found that in board games, it can lead to the use of skills in many fields because Board game players must work together in various areas, including thinking, observing, speaking, expressing, etc. When playing board games with individual elements that promote different skills, it helps players to develop their acting skills. Well.

From studies, various research reports, the researcher therefore uses educational game innovation to develop analytical thinking skills on imaginary lines that affect global climate characteristics. of students in Mattayomsuksa 3 at Demonstration School of Suan Sunandha Rajabhat University. The researcher believes that students' analytical skills can be developed. The target group can be higher. to be used for developing critical thinking skills together with the development of the students' rational thinking

OBJECTIVE

1. Cultivate the ability of Mattayomsuksa 3 students to analyze the hypothetical lines that affect the global climate characteristics. Suan Sunandha Rajabhat University Model School

CONDUCTION

Conduction The researcher conducted the research as follows:

1. The target group used in this research were Mattayomsuksa 3 students who are studying in the first semester of the academic year 2022, totaling 28 students using the purposive selection method because most of the students' analytical thinking skills test scores are not at the level because the said subjects have content in teaching and learning that complicated As a result, it is difficult for learners to understand the content and May result in students not interested in teaching and learning management of teachers. and cannot be applied to daily life of students.

2. This research, the researcher has created tools used in research operations. There are 2 types in total: educational games and analytical thinking tests. Hypothetical lines affecting global climate characteristics, with 4 options, 20 items, by the researcher's process of creating and checking the quality of the tools used in the research as follows:

2.1 Educational Games and Innovation Assessment Questionnaire on Learning Management The construction process was as follows:

- 1) Study conceptual documents, theories, and research related to educational games.
- 2) Study standards, indicators, and learning objectives from the core curriculum. basic education Demonstration school curriculum Suan Sunandha Rajabhat University and study the content from the textbook provided by the school for use in teaching and learning
- 3) Create an educational game innovation on the subject of hypothetical lines that affect the global climate of students. Mattayomsuksa 3.
- 4) Proceed for 3 experts to assess the quality of game innovations. Education includes Social Studies, Religion and Cultural Teachers with expertise check the correctness and suitability as well as give advice. Then used to calculate the index of consistency (IOC). According to experts evaluating educational innovations that affect learning management using educational games, the average rate The highest was 5.00 and the standard deviation was 0.00. Innovation was in the optimal criteria.
- 5) Adopt innovative educational games, and check and improve according to experts' suggestions.
- 6) Apply innovative educational games to research and teaching.

2.2 Analytical Thinking Skills Test The construction steps were as follows:

- 1) Study the theory and principles of constructing an evaluation test for developing analytical thinking skills in learning.
- 2) Study standards, indicators and learning objectives from the basic education core curriculum. School Curriculum, Demonstration School of Suan Sunandha Rajabhat University, and study content from textbooks
- 3) Create a test to measure the skills of analytical thinking skills according to the objectives. 1 copy of learning, using the same pre-test and post-test, is a multiple-choice test with 4 options, 20 questions.
- 4) Take the created analytical thinking skills development test. Go to 3 experts to examine and find the consistency index between the test and the learning objectives (IOC). The assessment form can measure the knowledge of the learners. Does it meet the learning objectives? The study of 3 experts has an Index of Concordance (IOC) between 0.67 – 1.00, with 20 questions created by the researcher that can be used for all items of the target group. According to the assessment results of experts.
- 5) Use proven analytical thinking skills development tests to make corrections and improvements based on expert advice.
- 6) Release analytical thinking skills development tests on hypothesis lines that affect climate characteristics..

3. Data Collection The researcher collects research data as follows:

1. The researchers coordinate with the head of the Social, Religious and Cultural Research Group to obtain permission to collect student research data. 3 Model School of Suan Sunandha Rajabhat University
2. The researcher conducted 20 pre study tests on the target group.
3. Teach according to the learning plan and use educational games with students for 6 weeks, divided into 2 classes each week. 50 minutes
4. When teaching and learning is completed the researcher therefore asked the target group to do an evaluation test. Analytical thinking skills in learning, amounting to 20 items after learning (Post-test) by a series of post-test tests. Same as the pre-test.
5. After collecting the data by the test, the researcher takes the data to analyze the results further.

4. Data used and statistical analysis. The researchers use lecture statistics to analyze data to analyze thinking skills. Analysis and research are conducted by using statistical data of mean value and standard deviation.

Research results

From this research, the researcher presents the results of the data analysis according to the objectives as follows:

Table 1 Mean and learning standard deviation of the number of students classified individually

Students	Point (20 Point)
1	19
2	13
3	16
4	14
5	18
6	14
7	15
8	11
9	14
10	15
11	16
12	12
13	15
14	18
15	12
16	15
17	16
18	11
19	12
20	15
21	12
22	14
23	19
24	15
\bar{x}	14.82
S.D	2.28

From Table 1, it was found that the students' critical thinking skills increased after using educational games. with a mean of 14.82 and a standard deviation of 2.28. After studying, the most is 19 points out of 20, where the 8th and 18th students have test scores. After studying, the lowest is 11 points out of 20 points.

Table 2 compares the scores of students' critical thinking skills. by pre-test and post-test

Students	Preschool Score	After class score (20)
1	4	19
2	7	13
3	10	16
4	7	14
5	10	18
6	2	14
7	10	15
8	7	11
9	6	14
10	5	15
11	7	16
12	7	12
13	8	15
14	9	18
15	8	12
16	2	15
17	8	16
18	6	11
19	5	12
20	4	15
21	8	12
22	8	14
23	7	19
24	8	15
\bar{x}	6.86	14.82
S.D	2.07	2.28

From Table 2, it was found that before learning by using educational games, students had critical thinking skills. with a mean of 6.86 and a standard deviation of 2.07, most of which were in the non-compliant level. The students who scored the highest were the 3rd, the 5th and the 7th students scored 10 points out of 20. The students who scored the lowest were 2 points out of 20 were the 6th and the 6th students. 16 However, after learning management using educational games, it was found that students had improved critical thinking skills. with a mean of 14.82 and a standard deviation of 2.28. The student with the highest post-test score was 19 out of 20 and the lowest score was 12. Out of 20 points are 12th, 15th, 19th and 21st students.

DISCUSSIONS AND CONCLUSIONS

from the analysis the development of analytical thinking skills on imaginary lines affecting global climate characteristics of Mattayomsuksa 3 students at Demonstration School of Suan Sunandha Rajabhat University by using educational games. The researcher would like to discuss the results according to the research objectives.

Using games to study the analytical thinking skills of hypothesis lines that affect the characteristics of global climate, research findings are made. The average analytical thinking skill based on educational games is 6.86, and the standard deviation is 2.07. After using educational games for learning management, students' analytical thinking ability has been significantly improved, with an average level of 14.82. The standard deviation is 2.28. All students' test results meet the standard. This may be due to the following reasons: Researchers create a research game of hypothesis lines that affect the characteristics of global climate. The process mode of attracting students' attention is to learn and develop critical thinking skills by taking games as a part of management. By focusing on making students enjoy learning management in another way. In addition, the educational game aims to let students practice the skills of self-analytical thinking while expressing their thoughts. In addition, students must acquire knowledge in fun according to the uniqueness of educational game learning management. According to Lee's concept (refer to Chaiwat Suthirat, 2018: 437-438), the benefits of educational games or game learning management. 1. Cultivate enthusiasm and focus on students. 3. Provide students with opportunities to make decisions and solve problems. 4. The game will immediately get results or feedback from the game. Win or lose. 5. The game will help reduce mistakes. Students are more free than usual. 6. Promote collaboration and another way. In social learning, some common questions are to answer questions in educational game activities and student simulation. As part of the game, some students are unable to answer questions. This is part of the game simulation. However, the test results of the target students All of these have significantly improved analytical thinking skills, thus demonstrating the use of game education in learning management. According to the research of Prayon Chulmuang (2009-57), improve students' critical thinking ability Develop game-based teaching activities to promote analytical thinking skills in geo-economics. Kongjing Institute of Technology After organizing game experience to improve analytical thinking skills, the average score of the first cycle was 80.25% of the students passed the standard, accounting for 75% of all students. The average score of the second cycle was 82.50%. The students who passed the standard accounted for 85% of the total number of students. The average score of the third cycle was%. 88 The total number of students passing the test accounts for 100% of the total number of students. It can be seen from the cycle that when students are arranged, the development of analytical thinking is getting higher and higher. Experience of using games to promote critical thinking skills and Kritnai Chumvuttisak (2015:117) research and develop critical thinking skills. Democratic Citizenship Learning Unit Social Studies 5 Mattayomsuksa 5: Using the game teaching mode, the students' analytical thinking ability scores higher, with an average score of 14.09% or 70.45%

RECOMMENDATIONS

1. Research suggestions

1.1. Educational games about hypothetical lines that affect global climate characteristics can be applied to various topics. Ministry of Social Studies, Religion and Culture Focus on analytical thinking skills.

1.2. It should be emphasized that the fun of learners is very important, otherwise learners may be tired of using educational games to manage learning.

2. Suggestions for further research

2.1. The researcher should study the aims of the educational game adopted whether there is a congruence between the content and the process of the educational game.

2.2. Other concepts of teaching theory are associated with learning management. using educational games.

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