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The Effects of MANSA Historical Board Game toward the Students' Creativity and Learning Outcomes on Historical Subjects

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Abstract: The constraints of history learning in the Indonesia curriculum are the weekly time is only one hour of lessons and the material is quite dense, if delivered with an explanation and discussion the time is not enough. Therefore, it was sought how to get all material delivered and students not bored. Learning this model is done to condition students as a center of learning, increase creativity and learning outcomes, the project undertaken is called the MANSA Historical board game (MANSA is taken from the abbreviation of our school name). In this case, students are asked to create, design their own board game on a different topic for each group. This study aims to determine the differences in learning outcomes and creativity between the control class and the experimental class of students at senior high schools in Salatiga, Indonesia. The research model used is quasi-experimental. The respondents of the research were 35 students in the experimental class and 35 students in the control class, who had the same homogeneity in creativity and learning outcomes. The results showed that the MANSA Historical board game had a significant effect on creativity and student learning outcomes. It is proven that creativity and student-learning outcomes can be increased. As shown by the mean different test results, there was a difference in the creativity of 0.593 and a learning outcome of 4.224 between the control class and the experimental class before and after treatment. The results showed a difference in learning outcomes between the control class and the experimental class. The average learning outcomes of the experimental class are higher than the average learning outcomes of the control class, as well as student creativity.

Keywords: Board game, creativity, history, learning outcomes, project-based learning.

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Introduction

The classroom learning environment in general is not an appropriate and effective way to improve student competence (Domitrovich et al., 2017). Many teaching methods are known and found to be conducive to the development of basic competencies students must master, one of which is project-based assignments (Putri et al., 2017). Project-based learning has been recognized as an effective and popular method for teaching key competencies (Akcanca & Cerrah Ozsevgec, 2018; Hursen, 2018). One reason is that the method has a typical cross-curricular rather than based on one specific subject, which means that this method can discuss more than one subject, core competencies, and skills at the same time. Another reason is that this project-based learning provides many opportunities for students to gain deeper knowledge together with 21st-century skills.

In the 21st century, the competencies and skills needed by students are more emphasized on seven skills, namely critical thinking skills, collaboration and leadership, dexterity, and adaptability. Initiative and entrepreneurial spirit, able to communicate effectively both verbally and in writing, able to access and analyze the information obtained well and have a good curiosity and imagination (Goswami, 2018; Putranta & Kuswanto, 2018). Furthermore, the US-Based Apollo Education Group identifies ten competencies that students must possess to be able to work in the 21st century, namely critical thinking skills, communication, leadership, collaboration, adaptability, productivity, and accountability.

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Furthermore, innovation, global citizenship, ability and spirit of entrepreneurship, and the ability to access, analyze, and synthesize information (Tondeur et al., 2017).

Knowledge needs to provide real skills in life, encourage innovation, and support the talents of students. The development of innovation skills in complex environments will draw the line between those with high academic achievement and those with low academic achievement. Innovative skills include innovation, creativity, problem-solving, critical thinking, collaboration, and communication (Khaliq et al., 2015). History learning in many schools in Indonesia is nothing more than the transfer of student-teacher knowledge in the classroom through one-way communication. Students only become passive objects who should memorize notes dictated by the teacher so that they can answer the questions to be tested. This kind of history learning method has made history lessons boring because it does not give an emotional touch, students feel not actively involved in the learning process (Sayono, 2015). History subjects in high school include subjects that are saturated and do not attract students' interest in teaching (Warsito et al., 2019).

The constraints of history learning are the weekly time is only one hour of lessons and the material is quite dense, if delivered with an explanation and discussion the time is not enough, and of course boring. Therefore, it was sought how to get all material delivered and students not bored. Learning this model is done to condition students as a center of learning, increase creativity and learning outcomes, the project undertaken is called the MANSA Historical board game (Darmawan et al., 2017). In this case, students are asked to create, design their own board game on a different topic for each group.

The use of games that involve students in the learning process is not a new idea. Over the last few years, educators have included various games in their learning implementation plans to create a learning environment that is fun and actively engages students. Interactive, collaborative, and competitive games tend to motivate and encourage students to participate in the learning process (Liao et al., 2019). Over the years, the format of games in the classroom has changed drastically and effectively carried out as part of the learning process in the classroom (Anshari et al., 2017). Sato and de Haan (2016) stated in their research that integrating board game games with elements of classical learning experiences (demonstrations, observations, reflections, discussions, and repeated experiences) which showed an increase in student understanding, overall, integrated models succeeded in teaching certain material. Therefore, the MANSA Historical board game project is integrated with the modern board game approach with classical learning elements (demonstrations, observations, reflections, discussions, and repeated experiences).

Previous studies have shown increased understanding and excitement when students play modern board games while teaching (Khan et al., 2017). Research has shown that the use of various board games has contributed to student learning. There are three advantages to the game and board game. First, this game often gives birth to a positive attitude towards learning and encourages student involvement in the learning process. Second, active involvement stimulates learning preferences. Besides, the third game provides the opportunity to integrate and apply to teach (Park et al., 2019). Board game turns students into active participants rather than passive consumers of information; this active involvement has a positive impact on learning and absorption (Arfani & Sulistia, 2019).

Students who are actively involved in learning with board games will be better at applying their level of knowledge regarding Bloom's taxonomy than learning using traditional pedagogy. Board games strengthen and broaden the scope of subject matter; games provide many opportunities to develop teamwork, collaboration, and interpersonal social skills (Sardone & Devlin-Scherer, 2016). Previous research states that learning with project-based learning, shows differences in increasing student learning outcomes and creativity, knowledge cannot be achieved passively, must be actively sought, other learning goals such as curiosity, creativity, self-worth, and behavior as well as innovation, all of which require experience real, and motivational that can show their potential (Husna et al., 2019). Therefore, to develop it teachers need new approaches, one of which is project-based learning (Tsybulsky & Muchnik-Rozanov, 2019). This research aims to increase student creativity and learning outcomes of history through the MANSA Historical board game project.

Literature Review

The MANSA Historical Board Game Project

The existence of online games, and how students like to play them, inspires writers to encourage students to make their games. The board game is an important tool of learning-by-doing and developing abilities for all ages on all subjects (Almeida & Simoes, 2019). Board game games will create an atmosphere that invites students to take an active role, and of course, will provide a pleasant environment. The board game itself can visually assist link various information. When the board game making process will be discussed elements of the game, there will be discussions and problem solving with group members regarding the board game material that will be made, it is a means of teaching (da Silva Junior et al., 2019). Good questions, problems to solve, and many situations to think about will allow players to apply what they have learned.

When playing in a team, the members will learn together, no one feels left out because they don't know the answer. Questions will assist verify understanding which learning is needed more. A board game will be able to change abstract

concepts. The board game is an ideal tool to accommodate various learning styles (Khenissi et al., 2016). Team-based board games will be able to assist build communication and relationship skills when players face to face answer all questions or solve problems and see that together often they find something they previously thought they didn't know (Roosan et al., 2019). The power of collaboration becomes very clear, later in many organizational settings, it can assist change many work relationships. MANSAs Historical board game is a project to create board games with historical material, all of which are done by students, from designing board games, collecting material, making game rules to creating a new board game.

Creativity

The creation of this historical board game requires creativity; this will later be used as a benchmark for learning success. According to Amponsah et al. (2019), there are three elements involved in developing one's creativity, namely imagination, the process of remembering things that are not in our minds; creativity, which is the process of developing original ideas that have value; and innovation, which is the process of putting new ideas into practice. Creativity is a multi-faceted process, which involves many ordinary abilities and some special skills and techniques. It can be developed by different ways of thinking, based on critical judgment, imagination, intuition as well as hunches (Ward & King, 2018). Creativity is the interaction between skills, processes, and the environment in which an individual or group produces products that can be seen, both new and useful as defined in a social context (Rodriguez et al., 2019).

Furthermore, Shubina and Kulakli (2019) mention 4P for creativity, namely Person, Process, Press (Pressure given by the environment), and Product. The Person dimension involves how personality, motivation, thinking style, emotional intelligence, or knowledge affect a person's creativity (Sijbom et al., 2018). Creativity is an attribute of the Process that is a stage of how to think and learn in the process of creative thinking. Stages of different models are arranged to enhance the creative process and usually consist of a systematic sequence of mental activities involved in the creative process. Indicators of creative thinking consist of fluency, flexibility, originality, and elaboration (Khedhaouria et al., 2017; Pauline-Graf & Mandel, 2019). Smoothness is the ability to create a myriad of ideas. This is one of the most powerful indicators of creative thinking because the more ideas, the more likely there is to get a significant idea.

Flexibility is the ability to overcome mental obstacles, change the approach to a problem so that it does not get stuck by assuming conditions that cannot be applied to a problem. The category of originality refers to the uniqueness of any response given so that the response that is raised is unusual, unique, and rare (Sidi et al., 2020). Finally, elaboration is the ability to describe a particular object in more detail. In line with this, Bloom's Taxonomy informs indicators of creative thinking from affective approaches including curiosity, imagination, attitudes to face challenges and risks, motivation, and self-confidence (Fauzi et al., 2019). Meanwhile, Saddhono et al. (2019) stated that creative thinking is one part of creativity consisting of creative thinking, creative habits, creative actions, and creative products.

Furthermore, Antwi et al. (2019), argues that creativity as a Press (Pressure given by the environment), the press is defined as the relationship of living things with their environment. Environmental influences can mean very general, and traditional. People who can enjoy the environment will be more creative. The MANSAs Historical board game project is designed to meet the needs of visual kinesthetic student learning styles, the traditional way of learning lectures, with textbooks and quizzes not fostering students' abilities and interests in learning something, because students tend to have a kinesthetic visual learning style. Therefore, many game and game simulations were made, in their learning strategies in class, this time it was not the teacher who made the board game, but the students who created their board games. Learning this model is done to condition students as learning centers, the project carried out is called MANSAs Historical Board Game.

Learning Outcomes

In addition to creativity, this research will also look at how students learn history results. Assessment must be able to accommodate all aspects of student potential. Future assessments will be technology-based, measure new constructs, build on fundamental and richer cognitive models, make better use of more complex tasks, be yourself, improve learning, be accountable, assessments made can be carried out for the long-term, using automated assessments, combining new approaches to modeling and analysis, and preparing more effective reporting (Bennett, 2018). One of the objectives of the assessment is to enable students to actively monitor and manage their learning processes (Xiao & Yang, 2019). Learning outcomes are changes that occur in students, both concerning cognitive, affective, and psychomotor aspects (Enneking et al., 2019).

Learning outcomes are an achievement of abilities obtained by students after following the teaching and learning process. Learning outcomes can be seen from student test scores, effective sheets, and psychomotor (Naik et al., 2020). Learning outcomes are a peak of the learning process. Learning outcomes are the results of an act of learning and the act of teaching (Van der Meij et al., 2020). From the teacher's point of view, the act of teaching ends with a process of evaluating learning outcomes. From the student's side, the learning outcome is the end of the learning process. Learning outcomes occur mainly thanks to the evaluation of the teacher with the achievement of teaching objectives. The assessment relates to how assessments about the quality of student responses can be used to shape and improve

student competence (Cavanagh et al., 2019). Learning outcomes in this research were seen from the results of summative tests at the end of the semester because the board game students made was taken with various materials for one semester.

Research Problem

Constraints Learning history in senior high school is a week that is only one hour long and the material is quite dense, if delivered with an explanation and discussion time is not enough, and of course boring, therefore looking for how to get all material delivered and children are not bored. One of the demands of the Indonesian curriculum is how teachers can condition students as learning centers. Project-based learning is the most familiar learning done for the Indonesian curriculum. Learning this model is done to condition students as a center of learning, increase creativity and learning outcomes, the project undertaken is called the MANSA Historical Board game, students are asked to create, design their board games on different topics to each group.

Research Question

Based on the problems that have been explained in the previous section in the form of various constraints faced by teachers in presenting historical subject material to senior high school students, then here are some questions that will be discussed in this research.

1. How do students experience in compiling MANSA historical board games on historical subjects?
2. What is the difference in student learning outcomes between the control class and the experimental class, before and after using the MANSA Historical Board game?
3. What is the difference in students' creativity between the control class and the experimental class, before and after using the MANSA Historical Board game?

Research Focus

Following the explanation of the problems and research questions in the previous section, the focus of this research is to determine the effect of using the MANSA Historical Board game on creativity and student learning outcomes in historical subjects.

Methodology

Research Design

The method used in this research is quasi-experimental. This is done because it cannot fully control the external factors that affect students' creativity and learning outcomes. Meanwhile, this research was conducted at senior high schools in Salatiga, Indonesia using 70 students or 35 students in each class. The research design used in this research was a randomized post-test-only control group design. Randomized post-test-only control group design itself is a research design that uses two classes that have been randomly selected, then given treatment that ends with assessing the creativity and learning outcomes of students. Meanwhile, the research design used in this research can fit in the form of a scheme as shown in Figure 1 below.

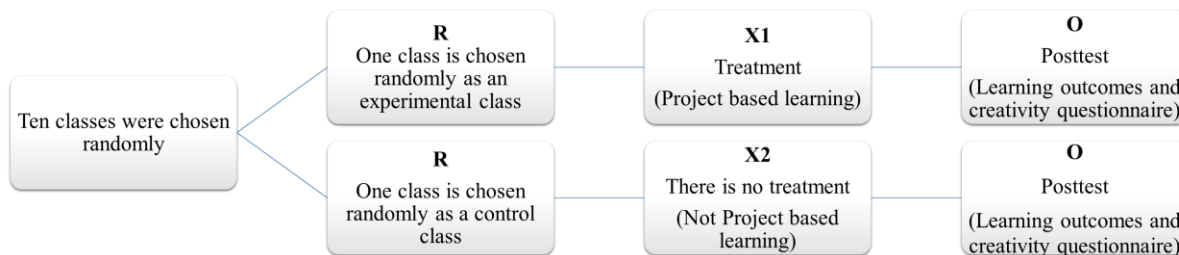


Figure 1. Randomized posttest-only control group design

Instruments and Procedures

The two classes that have been selected are homogeneous classes for the variables of creativity and learning outcomes, then one class as an experimental class and the other class a control class. The treatment in the control class is to make MANSA historical presentation as is usually done by the teacher. Meanwhile, the treatment given to the experimental group is to make the MANSA historical board game. The two groups will be measured how the different levels of creativity and learning outcomes. The measurement of learning outcomes is taken from the summative scores at the end of semester history subjects. Meanwhile, creativity indicators are adapted based on the concept of creativity according to Shubina and Kulakli (2019), which can be shown in Table 1 below.

Table 1. Indicators of the creativity assessment

| Indicator | Operational Indicator | Item Number |
|-----------|--|-------------|
| Person | Having a high curiosity, with a strong learning motivation. | 1 |
| | Have the ability to integrate different ideas. | 2 |
| | Can independently complete the work. | 3 |
| | Want to dare to accept the challenge. | 4 |
| | Highly motivated to create and work hard to find discoveries. | 5 |
| Process | Can implement new ideas. | 6 |
| | Can provide the best solution. | 7 |
| | Can integrate previous knowledge with new ones. | 8 |
| Press | Motivate students to express their opinions from various points of view. | 9 |
| | Motivate students to want to keep trying. | 10 |
| | Respect and accept students' opinions and feelings. | 11 |
| | An environment that frees students to learn. | 12 |
| | Encourage students to be free to ask questions. | 13 |
| Product | The product is unique and original. | 14 |
| | Can apply new concepts. | 15 |
| | Can effectively complete tasks or solve problems. | 16 |
| | The product produced can be used. | 17 |

The pretest learning outcomes to test homogeneity used summative test questions from the previous semester and posttest questions used summative test questions afterward, summative tests in Indonesia were conducted every 3 months and for the creativity variables the pretest and posttest questions were the same as in table 1.

The operational procedure of the control class in making MANSAs historical presentations is the teacher maps the subject matter that must be learned in one semester that contains 7 subjects that they must study. Students are divided into 7 groups, each consisting of 5-6 students. Each group discusses a different subject and serves as presentation material for each group. Students are given the freedom to process their presentation material. Next, the teacher shows examples of creative presentations on the internet, and students are also given the freedom to find their inspiration in making their presentations. The teacher gives a timeline for this project, from consulting the draft, to being a good presentation with one month.

The experimental class is working on the MANSAs historical board game which is expected to assist students in completing historical material that they must understand. The creativity of the experimental class will be seen from the process of compiling board game material to the results of the board game they make. While learning outcomes are seen from the same formative tests for both the control class and the experimental class. The operational procedure of the MANSAs Historical board game of this experimental class is the teacher maps the subject matter that must be learned in one semester which contains 7 subjects. Then students are divided into 7 groups with 5-6 students each. Each group discusses a different subject that is used as MANSAs historical board game material for each group. Students are given the freedom to translate one subject matter to complete the MANSAs historical board game. Next, the teacher shows examples of historical board game pictures on the internet and students copy the entire picture. Students are also given the freedom to find their inspiration in making the MANSAs historical board game. Meanwhile, the teacher gives a timeline for the project's process, from consulting the draft to being the MANSAs historical board game for one month. Meanwhile, the framework and the flow of the research methodology used in this study can be shown in Figure 2 below.

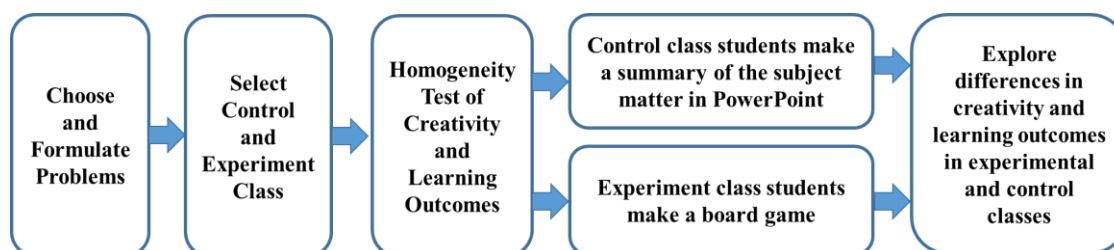


Figure 2. Research methodology framework and flow

Analyzing of Data

Measurement of students' historical learning outcomes is taken from the summative scores at the end of the semester. Scoring criteria for student creativity as presented in Table 1. Meanwhile, validity and reliability tests were performed using corrected items to total correlation and Cronbach's Alpha, the results of which showed no negative variables.

Furthermore, the result of alpha Cronbach's Alpha is 0.856, which means that the scoring criteria with the creativity instrument in Table 1 are valid and reliable. The details are that for the person dimension, the Cronbach's Alpha result is 0.798, the process dimension is Cronbach's Alpha result of 0.856, the press dimension is Cronbach's Alpha result of 0.876, and the product dimension is Cronbach's Alpha result of 0.894. All dimensions of creativity are valid and reliable. The scoring criteria for learning outcomes are taken from summative assessments or high school students' history end-semester tests. The validity and reliability of the final semester test were carried out by testing using Cronbach's Alpha as well as testing the students' creativity measurement instruments. However, the final semester test instrument was not included in this study, because the implementation of this research was still in the middle of the semester and the focus of this study was on the creativity of students. The data analysis technique used is the comparative descriptive analysis of the mean difference t-test with the assist of the SPSS program, namely by comparing the control class and the experimental class before and after carrying out learning using the MANSA historical board game. Meanwhile, the hypothesis proposed in this study is H1: there are differences in student creativity, control class, an experimental class, before and after implementing the MANSA Historical Board game project. H2: There are differences in student learning outcomes, control class, an experimental class, before and after implementing the MANSA Historical Board game project. Furthermore, before knowing the difference in the treatment of an object, the step taken is to first test whether the object has the same character, especially in learning outcomes and creativity. Therefore, the homogeneity test was carried out whose results can be shown in table 2. Reliability Indicators for the assessment of creativity were tested using Quest software and the result of the reliability of the creativity assessment item was 0.86. The results of the reliability test showed reliable results because the score obtained was more than 0.75 (Putranta & Wilujeng, 2019).

Results

Students Experience in Compiling MANSA Historical Board Games on Historical Subjects

The results of the MANSA Historical Board game by students can be shown in Figure 2 to 4. There is a student's group who named the Board in the form of an-Anonymous Game as shown in Figure 3 below.



Figure 3. Anonymous game

This board game discusses the meaning of history, there are chance cards, destiny cards, question plots, bomb signs, and flip images. The way to play is very simple, the player only needs to roll the dice, and follow each of the instructions in each game box. Historical material which is used as the basis for making anonymous board games is material regarding the concept of history. How to play is explained as follows, the player consists of 5 people, each player rolls the dice, if one player gets the highest number of dice then he becomes the first player, the first player after rolling the dice will get the number of steps he has to run the token on each box when stopping in a box, the player must follow the instructions in the box. The instructions can be various, such as answering questions about the meaning of history, the importance of learning history. If the token stops at the bomb sign, it means that the player cannot continue the game for one round. This game is over if one of the players reaches the finish, the player who reaches the finish first is declared to win the game. Furthermore, the Round 'space game is complete with spaceship tokens and stars, as shown in Figure 4 below.



Figure 4. Round space game

The historical subject material contained in the Round Space Game is about the style of life and cultural products of the Indonesian Pre-Literary era. How to play it is unique, according to the makers, besides studying history, students will also learn the solar system and the greatness of God. Round Space Game is a game that was inspired when they discussed the occurrence of solar eclipses in Indonesia.

How to play, the player must have a maximum of 5 members to start on the specified planet, the first turn player determines the planet he wants to visit, then jumps to the next planet in the order of the planets in the solar system. Every player is on one planet, he is obliged to answer the questions on that planet, if he answers correctly and progresses according to the order of the planets correctly gets two gold stars, if wrong then he does not get stars, and must return to the previous planet. The player who gets the most stars is the winner. Meanwhile, students then refer to the game as the Seizure of Territory that can be shown in Figure 5 below. This game tells the story of power struggles between kingdoms in the Hindu-Buddhist era.



Figure 5. Seizure of territory games

This game discusses the material of Islamic kingdoms in Indonesia. Seizure of Territory games tells of a royal commander in Indonesia around the 4th century AD, who will expand his territory, the player consists of 5 people who will determine where he wants to be commander in the kingdom, by choosing one of the tokens consisting of 5 colors, selecting the token done in turns. The way to play begins with, for example, one player chooses yellow, then he is the commander of the Kutai kingdom, the owner of the kingdom may pass through his kingdom (which is 3 squares wide), without answering questions, then the player rolls the dice, to run his token, if he is at 3 boxes from another kingdom, then he is obliged to answer questions about the neighboring kingdom. If the answer is correct then he can pass through the royal territory and get another box of kingdom territory, if wrong then he cannot pass the route for one round. The winner is the player who has the largest area of the kingdom.

Furthermore, instructional media that have been developed by students on historical subjects in the form of the MANSA Historical Board game are also uploaded on social media such as YouTube. This is done with the aim that high school students, teachers, practitioners, and other researchers can use these learning media and can develop learning media similar to modify them. Therefore, Figure 6 shows the MANSA Historical Board game that has been uploaded on YouTube.



Figure 6. MANSA Historical Board game uploaded on YouTube

The Effect of MANSA Historical Board Game on Creativity and Student Learning Outcomes

MANSA Historical Board game that has been developed by students, then they are used to assist make it easier to understand historical material delivered by the teacher. However, before knowing the difference in treatment in a group of students, the researcher first tests whether the groups of students have the same character, especially in

learning outcomes and creativity. Therefore, the researchers first conducted a homogeneity test with the assist of the SPSS program, the results of which can be shown as in Table 2 below.

Table 2. Homogeneity test of creativity and student learning outcomes

| | Sig. (2-tailed) | Category |
|---|-----------------|-------------|
| Pretest about the creativity of the control class - the experimental class | 0.058 | Homogeneous |
| Pretest about learning outcomes of the control class - the experimental class | 0.076 | Homogeneous |

Based on the results shown in Table 2 it can be seen that the significance value of the control class creativity variable on the creativity variable of the experimental class is $0.058 > 0.050$. This means that the creativity variables in the control class and the experimental class have the same characteristics, so it can be concluded that the creativity variables in both classes are homogeneous. Similarly, the control class learning outcomes variable of the experimental class learning outcomes variable of $0.076 > 0.050$. This means that the learning outcomes of the control class and experimental class have the same characteristics, so it can be concluded that the two classes are homogeneous. Furthermore, the pre-test and post-test results of the students' creativity of the control class and the experimental class can be shown in Table 3 below.

Table 3. Pretest and posttest results of student creativity

| Indicator | Pre-test | | Post-test | |
|----------------|---------------|--------------------|---------------|--------------------|
| | Control Class | Experimental Class | Control Class | Experimental Class |
| Person | 2.774 | 2.872 | 3.015 | 3.349 |
| Process | 2.795 | 2.846 | 2.804 | 3.615 |
| Press | 2.923 | 2.810 | 2.949 | 3.523 |
| Product | 2.853 | 2.808 | 2.910 | 3.686 |
| Average | 2.836 | 2.834 | 2.919 | 3.543 |

Table 3 is the results of the pretest and posttest of the variable of student creativity in the control class and the experimental class. Furthermore, the average creativity of students is obtained by using the MANSA Historical board game of 3.5 for the four indicators. These results indicate higher results than the average student who uses Historical presentation, which is 2.9. Pretest learning outcomes both the control class and the experimental class are taken from the results of formative tests conducted by the teacher, while the posttest of learning outcomes is taken from the summative value. Meanwhile, pretest and posttest learning outcomes in the control class and experimental class can be shown in the following Table 4.

Table 4. Pretest and posttest results of student learning outcomes

| | Pre-test | | Post-test | |
|---------------|---------------|--------------------|---------------|--------------------|
| | Control Class | Experimental Class | Control Class | Experimental Class |
| Average Value | 73.26 | 73.05 | 88.62 | 92.84 |

Furthermore, the differences in the creativity of students do historical learning with the assist of the MANSA Historical Board game and students doing learning using the MANSA Historical presentation can be seen in Table 5 below.

Table 5. Mean difference test of creativity and student learning outcomes

| | Mean | T | Sig. (2-tailed) | Category |
|--|--------|---------|-----------------|---|
| Posttest about the creativity of the control class - the experimental class | -0.593 | -8.035 | 0.000 | The creativity variable is significantly different |
| Posttest about learning outcomes of the control class - the experimental class | -4.224 | -18.797 | 0.000 | The learning outcomes variable is significantly different |

Based on Table 5, it can be seen that the level of significance between the two variables is $p < 0.001$. This shows that there is a difference in creativity between the control class and the experimental class of 0.593. Similarly, the results of the study of student learning outcomes variables that do historical learning with the assist of MANSA Historical board game with Historical presentation obtained a significance level of $p < 0.001$ and a change of 4.224. This means that there are differences in learning outcomes between the control class that uses the MANSA Historical presentation and the experimental class that uses the MANSA Historical board game.

This difference in learning outcomes shows that the games they make help students to better understand history. Games made based on historical material turn out to make it easier for students to learn historical material, they also

seem to enjoy the process of making games, from planning, processes, what things are needed to make the game, from materials, tools, and test materials to finished products, which other friends can use to learn certain historical material because students can exchange their history board games.

Discussion

The results of this study indicate how creativity and student learning outcomes differ between the control class and the experimental class. In the experimental class, it was shown that very satisfying student work can be seen from the average score of student creativity with the historical board game project on the product indicator of 3.686. Likewise, the improvement of student learning outcomes variables that do historical learning with the assist of MANSA Historical board game with Historical presentation obtained a significance level of $p < 0.001$ and a change of 4.224. Game boards can attract attention and curiosity, people who play will experience for themselves how they master competence, are directly involved in the game, generate intrinsic motivation, and increase activity (Koivisto & Hamari, 2019). Gamification has received significant attention, especially in the context of education (Seaborn & Fels, 2015).

Their board game is unique, original, innovative, and combines various board game games. This project takes one month with 7 historical board games created by these students to make it easy to read, understand, play, learn honesty, never give up, and tolerance. When children are given the freedom to express all their ideas, it turns out the result is respect for the opinions of others, sportsmanship, and they are proud of their nation, intelligent, beautiful, and upholding character. It is not surprising if the results of the research show that there are differences in creativity between the control class (historical presentation) and the experimental class using the MANSA Historical board game. The creativity of the experimental class is also higher than the creativity of the control class. The results of this research are consistent with research by Muell et al. (2020), which suggests that board games turn students into active participants rather than passive consumers of information; this active involvement has a positive impact on learning and absorption.

The assignment of the MANSA Historical board game project to improve curiosity and motivation to learn, students can integrate different ideas and independently complete their work. Students naturally accept challenges, create, and find something new in their project outcomes (Kohn Radberg et al., 2020). This group project in the process makes students able to integrate their knowledge with what students find during the process of working on their projects. They are also free to express their income, are willing to accept other people's opinions, and most importantly, the results of their group's work are manifested in real, different, unique, and original work. Thus, in a fun and carefree manner students do not feel that they are reviewing historical material that they must understand (Singh et al., 2019; Sorgo, 2012). This project makes students develop their creativity, think critically, and skillfully investigate, infer material, and connect with real-world problems, so that the material is well presented. The trust and motivation given to students is the key to the success of this project, students become more confident to develop their creativity. This is consistent with previous research showing increased understanding and excitement; when they play modern board games during teach (Mayer et al., 2019; Putranta & Supahar, 2019). Research has shown that the use of various board games has contributed to student learning, to improve learning outcomes and creativity.

Someone likes games for several reasons. The researchers found in a survey of 169 adults that while playing respondents liked the opportunity to fantasize and relive unusual moments and be entertained by playing board games (Crist, 2019). Other researchers found that many educational games are useful for learning knowledge and improving group work skills, able to improve decision-making abilities and create an environment psychologically healthy in the classroom, during the lesson (Cheng et al., 2019). Previous research states that learning with project-based learning, shows differences in increasing student learning outcomes and creativity, knowledge cannot be achieved passively, must be actively sought, other learning goals such as curiosity, creativity, self-worth, and behavior as well as innovation, all of which require experience real, and motivation that can show their potential (Putranta & Wilujeng, 2019).

History classes that are usually quiet, lecture teachers and students listening, now become noisy, because each group plays board games made by other groups. Meanwhile, the 7 board games in the class contain 7 subject materials that students must master in one semester. The results showed a difference in learning outcomes between the control class and the experimental class. The control class uses the project to make a creative presentation of historical presentations, in each presentation of historical subject material, while the experimental class is given the task of doing the MANSA historical board game project, making a historical board game in groups, with a different material in each group. The result is that the average learning outcomes of the experimental class are higher than the average learning outcomes of the control class.

If the teacher made some previous studies of the board game, in this research students made their board games, with a different material in each group in the experimental class. So they are independently experienced from the process to the board game products they make are complete. Students are also obliged to present from the meaning to the way the board game they made. After that, other groups will play the board game and students exchange board games, so students can learn other historical material. The implication is that in addition to increasing confidence, their work is

recognized and useful, students are also asked to publish their board games on YouTube and social media so that they can inspire others.

Conclusion

The results showed a difference in learning outcomes between the control class and the experimental class. The average learning outcomes of the experimental class are higher than the average learning outcomes of the control class, as well as student creativity. The implication is that in addition to increasing self-confidence, their work is recognized and useful, students are also asked to publish their board games on YouTube and social media so they can inspire others.

Suggestions

This research can contribute to thinking and as a benchmark for further research studies to improve the quality of education and improve student competence, especially for historical learning models. Students can improve their learning outcomes and creativity, enjoy history lessons, and gain new experiences. Adding variations in the learning model as an alternative to increasing historical learning activities and outcomes, and increasing the skills of managing teaching and learning activities. Besides, teachers, practitioners, or researchers can further develop learning media that are similar to modifying or making learning media that have been developed in this research into the Android system contained in smartphones. It is intended that students and teachers can use learning media wherever and whenever practically and effectively.

Limitations

In this research, some limitations include the limitations of respondents who contributed, only as many as 70 students from one senior high school. This research also has not yet conducted a classification of the types of senior high schools used as research subjects, whether public or private schools. Therefore, this research does not reflect the results of the responses of students from various senior high schools. The selection of respondents is determined based on the closest distance between the residence of the researcher and the senior high school. Thus, this research also does not reflect the heterogeneity of student responses from various types of senior high school. The results of the research could be different if the study subjects were more heterogeneous and there were more respondents. Therefore, this kind of research needs to be done, but with a more diverse level of heterogeneity.

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References

- Akcanca, N., & Cerrah Ozsevegce, L. (2018). Effect of activities prepared by different teaching techniques on scientific creativity levels of prospective pre-school teachers. *European Journal of Educational Research*, 7(1), 71-86.
- Almeida, F., & Simoes, J. (2019). The role of serious games, gamification, and industry 4.0 tools in the education 4.0 paradigm. *Contemporary Educational Technology*, 10(2), 120-136.
- Amponsah, S., Kwesi, A. B., & Ernest, A. (2019). Lin's creative pedagogy framework as a strategy for fostering creative learning in Ghanaian schools. *Thinking Skills and Creativity*, 31(1), 11-18.
- Anshari, M., Almunawar, M. N., Shahrill, M., Wicaksono, D. K., & Huda, M. (2017). Smartphone usage in the classrooms: Learning aid or interference? *Education and Information Technologies*, 22(6), 3063-3079.
- Antwi, C. O., Fan, C. J., Aboagye, M. O., Brobbey, P., Jababu, Y., Affum-Osei, E., & Avoronyo, P. (2019). Job demand stressors and employees' creativity: a within-person approach to dealing with hindrance and challenge stressors at the airport environment. *The Service Industries Journal*, 39(3-4), 250-278.
- Arfani, S., & Sulistia, A. (2019). Teaching speaking using a "Snake and Ladder" board game: A teacher story. *Research and Innovation in Language Learning*, 2(1), 65-72.
- Bennett, R. E. (2018). Educational assessment: What to watch in a rapidly changing world. *Educational Measurement: Issues and Practice*, 37(4), 7-15.
- Cavanagh, M., Barr, J., Moloney, R., Lane, R., Hay, I., & Chu, H. E. (2019). Pre-service teachers' impact on student learning: Planning, teaching, and assessing during professional practice. *Australian Journal of Teacher Education (Online)*, 44(2), 66-74.
- Cheng, P. H., Yeh, T. K., Tsai, J. C., Lin, C. R., & Chang, C. Y. (2019). Development of an issue-situation-based board game: A systemic learning environment for water resource adaptation education. *Sustainability*, 11(5), 1341-1352.

- Crist, W. (2019). Playing against complexity: Board games as a social strategy in Bronze Age Cyprus. *Journal of Anthropological Archaeology*, 55(1), 101-112.
- da Silva Júnior, J. N., Uchoa, D. E. D. A., Sousa Lima, M. A., & Monteiro, A. J. (2019). Stereochemistry game: Creating and playing a fun board game to engage students in reviewing stereochemistry concepts. *Journal of Chemical Education*, 96(8), 1680-1685.
- Darmawan, E., Zubaidah, S., Susilo, H., Suwono, H., & Indriwati, S. E. (2017). Simas Eri learning model based on lesson study to increase student motivation and learning outcomes. *International Journal of Research and Review*, 4(4), 40-47.
- Domitrovich, C. E., Durlak, J. A., Staley, K. C., & Weissberg, R. P. (2017). Social-emotional competence: An essential factor for promoting positive adjustment and reducing risk in school children. *Child Development*, 88(2), 408-416.
- Enneking, K. M., Breitenstein, G. R., Coleman, A. F., Reeves, J. H., Wang, Y., & Grove, N. P. (2019). The evaluation of a hybrid, general chemistry laboratory curriculum: Impact on students' cognitive, affective, and psychomotor learning. *Journal of Chemical Education*, 96(6), 1058-1067.
- Fauzi, K., Amin, M., Dirgeyase, I. W., & Priyatno, A. (2019). Building learning path of mathematical creative thinking of junior students on geometry topics by implementing metacognitive approach. *International Education Studies*, 12(2), 57-66.
- Goswami, M. (2018). Comprehending and mapping 21st-century skills in the framework of higher education, employability, and life. *International Journal of Research in Social Sciences*, 8(7), 586-598.
- Hursen, C. (2018). The impact of Edmodo-assisted project-based learning applications on the inquiry skills and the academic achievement of prospective teachers. *TEM Journal*, 7(2), 446-455.
- Husna, A., Cahyono, E., & Fianti, F. (2019). The effect of project-based learning model aided scratch media toward learning outcomes and creativity. *Journal of Innovative Science Education*, 8(1), 1-7.
- Sayono, J. (2015). Pembelajaran sejarah di sekolah: dari pragmatis ke idealis [Learning history in schools: from pragmatic to idealist]. *Jurnal Sejarah dan Budaya*, 7(1), 9-17.
- Khaliq, S., Alam, M. T., & Mushtaq, M. (2015). An experimental study to investigate the effectiveness of project-based learning (PBL) for teaching science at elementary level. *International Journal of Academic Research in Progressive Education and Development*, 4(1), 43-55.
- Khan, A., Ahmad, F. H., & Malik, M. M. (2017). Use of digital game-based learning and gamification in secondary school science: The effect on student engagement, learning, and gender difference. *Education and Information Technologies*, 22(6), 2767-2804.
- Khedhaouria, A., Montani, F., & Thurik, R. (2017). Time pressure and team member creativity within R&D projects: The role of learning orientation and knowledge sourcing. *International Journal of Project Management*, 35(6), 942-954.
- Khenissi, M. A., Essalmi, F., Jemni, M., Graf, S., & Chen, N. S. (2016). Relationship between learning styles and genres of games. *Computers & Education*, 101(3), 1-14.
- Kohn Radberg, K., Lundqvist, U., Malmqvist, J., & Hagvall Svensson, O. (2020). From CDIO to challenge-based learning experiences—expanding student learning as well as societal impact? *European Journal of Engineering Education*, 45(1), 22-37.
- Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. *International Journal of Information Management*, 45(2), 191-210.
- Liao, C. W., Chen, C. H., & Shih, S. J. (2019). The interactivity of video and collaboration for learning achievement, intrinsic motivation, cognitive load, and behavior patterns in a digital game-based learning environment. *Computers & Education*, 133(4), 43-55.
- Mayer, R. E., Parong, J., & Bainbridge, K. (2019). Young adults learning executive function skills by playing focused video games. *Cognitive Development*, 49(1), 43-50.
- Muell, M. R., Guillory, W. X., Kellerman, A., Rubio, A. O., Scott-Elliston, A., Morales, O., & Brown, J. L. (2020). Gaming natural selection: Using board games as simulations to teach evolution. *Evolution*, 74(3), 681-685.
- Naik, G., Chitre, C., Bhalla, M., & Rajan, J. (2020). Impact of use of technology on student learning outcomes: Evidence from a large-scale experiment in India. *World Development*, 127(6), 1-28.
- Park, Y. H., Paik, T. Y., & Koo, J. H. (2019). Effect of student activity participation on accounting education. *Journal of Open Innovation: Technology, Market, and Complexity*, 5(3), 40-52.

- Pauline-Graf, D., & Mandel S. E. (2019). Defining preliminary research for digital game-based learning evaluation: Best practices. *International Journal of Educational Methodology*, 5(4), 623-635.
- Putranta, H., & Kuswanto, H. (2018). Improving students' critical thinking ability using problem-based learning (PBL) learning model based on PhET simulation. *SAR Journal*, 1(3), 77-87.
- Putranta, H., & Supahar, S. (2019). Development of physics-tier tests (PysTT) to measure students' conceptual understanding and creative thinking skills: A qualitative synthesis. *Journal for the Education of Gifted Young Scientists*, 7(3), 747-775.
- Putranta, H., & Wilujeng, I. (2019). Physics learning by PhET simulation-assisted using problem-based learning (PBL) model to improve students' critical thinking skills in work and energy chapters in MAN 3 Sleman. *Asia-Pacific Forum on Science Learning and Teaching*, 20(1), 1-44.
- Putri, N. L. P. N. S., Artini, L. P., & Nitiasih, P. K. (2017). Project-based learning activities and EFL students' productive skills in English. *Journal of Language Teaching and Research*, 8(6), 1147-1155.
- Rodriguez, G., Diez, J., Perez, N., Banos, J. E., & Carrio, M. (2019). Flipped classroom: Fostering creative skills in undergraduate students of health sciences. *Thinking Skills and Creativity*, 33(7), 1-10.
- Roosan, D., Law, A. V., Karim, M., & Roosan, M. (2019). Improving team-based decision making using data analytics and informatics: protocol for a collaborative decision support design. *JMIR research protocols*, 8(11), 16-23.
- Saddhono, K., Hasanudin, C., & Fitrianiingsih, A. (2019). The ability to think creatively on SSCS using schoology apps, how is the student's language metacognitive awareness? *Information Systems Engineering/ Ingenierie des Systemes d'Information*, 24(4), 367-375.
- Sardone, N. B., & Devlin-Scherer, R. (2016). Let the (board) games begin: Creative ways to enhance teaching and learning. *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas*, 89(6), 215-222.
- Sato, A., & de Haan, J. (2016). Applying an experiential learning model to the teaching of gateway strategy board games. *International Journal of Instruction*, 9(1), 3-16.
- Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. *International Journal of human-computer studies*, 74(4), 14-31.
- Shubina, I., & Kulakli, A. (2019). Pervasive learning and technology usage for creativity development in education. *International Journal of Emerging Technologies in Learning*, 14(1), 95-109.
- Sidi, Y., Torgovitsky, I., Soibelman, D., Miron-Spektor, E., & Ackerman, R. (2020). You may be more original than you think: Predictable biases in self-assessment of originality. *Acta Psychologica*, 203(7), 1-10.
- Sijbom, R. B., Anseel, F., Crommelinck, M., De Beuckelaer, A., & De Stobbeleir, K. E. (2018). Why seeking feedback from diverse sources may not be sufficient for stimulating creativity: The role of performance dynamism and creative time pressure. *Journal of Organizational Behavior*, 39(3), 355-368.
- Singh, G., Shaikh, R., & Haydock, K. (2019). Understanding student questioning. *Cultural Studies of Science Education*, 14(3), 643-697.
- Sorgo, A. (2012). Scientific creativity: The missing ingredient in Slovenian science education. *European Journal of Educational Research*, 1(2), 127-141.
- Tondeur, J., Aesaert, K., Pynoo, B., van Braak, J., Fraeyman, N., & Erstad, O. (2017). Developing a validated instrument to measure preservice teachers' ICT competencies: Meeting the demands of the 21st century. *British Journal of Educational Technology*, 48(2), 462-472.
- Tsybulsky, D., & Muchnik-Rozanov, Y. (2019). The development of student-teachers' professional identity while team-teaching science classes using a project-based learning approach: A multi-level analysis. *Teaching and Teacher Education*, 79(3), 48-59.
- Van der Meij, H., Veldkamp, S., & Leemkuil, H. (2020). Effects of scripting on dialogues, motivation, and learning outcomes in serious games. *British journal of educational technology*, 51(2), 459-472.
- Ward, S. J., & King, L. A. (2018). Individual differences in reliance on intuition predict harsher moral judgments. *Journal of Personality and Social Psychology*, 114(5), 1-25.
- Warsito, M. B., Haryono, H., & Wibawanto, H. (2019). E-learning development based on Schoology for subject of information and communication technology grade vii using flipped-learning approach. *Innovative Journal of Curriculum and Educational Technology*, 8(1), 1-10.
- Xiao, Y., & Yang, M. (2019). Formative assessment and self-regulated learning: How formative assessment supports students' self-regulation in English language learning. *System*, 81(2), 39-49.