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Analysis of Students' Learning Ability in Educational Innovation Assisted by Neo-Snake and Ladder Game Learning Media in the Society 5.0 Era

Anna Maria Oktaviani[1]*, Zulela, M.S.[2], Edwitah[3], Gusti Yarni[4], Fauzi Fadliansyah[5]

Corresponding author: annamaria@primagraha.ac.id

Abstract: *Educational innovation in the era of society 5.0 is essential. However, in social studies, it is still very low. Therefore, one way to improve the lacking results of social studies lessons is through learning media. One of them is the neo-snake and ladder game media. This study aims to determine the effectiveness of neo-snake and ladder game media in improving students' social studies skills in the era of society 5.0. The population in this study was fourth-grade students of SD Negeri Cipocok Jaya, Serang, Banten, for the 2022/2023 academic year. The researcher used simple random sampling. Then, the data were collected using social studies test questions and observations. The results showcased that (1) the classical completeness test of students' social studies abilities reached a minimum limit of 70, (2) social studies skills on neo-snake and ladder game media had reached 75% classical completeness, and (3) there was an increase in the average skill of social studies questions using neo-snake and ladder media. In addition, students' average social studies ability with games was better than those without neo-snake and ladder games media. Based on the results above, it can be concluded that the neo-snake and ladder games media effectively improve students' social studies skills.*

Keywords: *Neo-snakes and ladder games media, Social studies lessons, Society 5.0*

Abstrak: *Inovasi pendidikan pada era society 5.0 sangatlah penting. Namun pada pelajaran IPS masih sangatlah rendah. Maka dari itu, salah satu cara untuk meningkatkan hasil pelajaran IPS yang kurang dengan cara media pembelajaran. Salah satunya media neo snake and ladder game. Tujuan penelitian ini adalah untuk mengetahui keefektifan media Neo Snake and Ladder Game dalam meningkatkan kemampuan IPS siswa diera society 5.0. Populasi dalam penelitian ini adalah siswa kelas IV SD Negeri Cipocok Jaya, Serang, Banten. Peneliti menggunakan simple random sampling. Data pengumpulan menggunakan tes soal IPS dan observasi. Hasil penelitian menunjukkan bahwa (1) tes ketuntasan klasikal kemampuan IPS siswa mencapai batas minimal 70, (2) keterampilan soal IPS pada media Neo Snake and Ladder Game telah mencapai ketuntasan klasikal 75% dan (3) peningkatan rata-rata keterampilan soal IPS menggunakan media Neo Snake and Ladder. Permainan lebih baik daripada kemampuan IPS rata-rata siswa tanpa menggunakan media Neo Snake and Ladder Games. Berdasarkan hasil di atas, dapat disimpulkan bahwa media Neo Snake and Ladder Games efektif dalam meningkatkan kemampuan IPS siswa.*

Kata Kunci: *Media neo snake and ladder game, pelajaran IPS, Society 5.0*

[1]*Universitas Primagraha*
[2]*Universitas Negeri Jakarta*
[3]*Universitas Negeri Jakarta*
[4]*Universitas Negeri Jakarta*
[5]*Universitas Primagraha*

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INTRODUCTION

The development of the times demands a change in the world of education. Education is not only about academic growth, but the most important thing is character education. In this regard, humans are among the most valuable assets (Sudarsana 2016). Humans can control a system in the world because only God can create humans. On the other side, a learning system that has been in the classroom for a long time can cause boredom, especially when students are sometimes eager to interact but only focus on one of the teachers they use as role models in chatting, exchanging ideas and asking questions, and discussing interesting things (Putro, Khamim 2020).

Moreover, information technology development is currently reaching all areas of people's lives, including education. In the era of the industrial revolution 4.0, three literacies are needed: data literacy, human literacy, and technological literacy (Press 2020). Learning in the 4.0 revolution era can also apply hybrid/blended learning and case-based learning. Even education in the era of society 5.0 allows students or college students to participate in learning activities side by side with a system designed to replace the role of educators. It is because the goal of education is not a matter of time but comfort and consistency with what students have to deal with in the future.

According to Umro (2021: 108), the difference between the 4.0 and 5.0 revolutions is that 4.0 emphasizes business, but the 5.0 era highlights technology that creates a new value, which will eliminate social, age, gender, and language gaps and provide service products, specifically designed for a variety of individual and multiple people's needs.

Further, many challenges and changes must be faced in this society 5.0 era, including what must be done by the education unit as the main gate to preparing excellent human resources. The era of super smart society (society 5.0) was introduced by the Japanese government in 2019, which was created as an anticipation of the disruption caused by the industrial revolution 4.0, leading to complex and ambiguous uncertainty (VUCA). Darwis and Ginting (2021: 351) also revealed that the concept of society 5.0 resulted from Japan's adoption as a shield against global trends due to the 4.0 revolution. Society 5.0 is also a natural thing that has occurred due to the emergence of the 4.0 revolution. This revolution has given birth to various innovations in the industrial world and society generally. Nevertheless, it is feared that the invasion can erode the values of human character maintained so far.

In coping with the era of society 5.0, the world of education plays an essential role in improving the quality of human resources. Apart from education, several elements and stakeholders, such as the government, mass organizations, and the entire community, also welcome the upcoming era of society 5.0. To face the era of society 5.0, education units must also change the educational paradigm. Among them, educators should minimize their role as learning material providers and become the inspiration for the student's creativity growth. According to Kahar et al. (2020: 68), educators act as facilitators, tutors, inspirations, and true learners, who motivate students to freedom to learn.

Society 5.0 can also solve various challenges and social problems by utilizing multiple innovations born in the era of the industrial revolution 4.0, such as the Internet of Things, artificial intelligence, big data, and robots to improve the quality of human life. Society 5.0 can also be interpreted as a human-centered and technology-based society. Facing this society 5.0 era, three basic literacy skills are needed, such as data literacy, i.e., the ability to read, analyze, and use information (big data) in the digital world. Second, technological literacy is understanding how machines work and technology applications (coding, artificial intelligence, machine learning, engineering principles, and biotech). Lastly is human literacy, i.e., humanities, communication, and design.

As educators in the era of society 5.0, teachers must have skills in the digital field and think creatively. On creative ability, one of the six basic literacy skills in Society 5.0, the problem is that teachers have not been able to think creatively in teaching. One of them is the monotonous learning in utilizing the learning media. The learning media used are very far from the concept of society 5.0, which still utilizes traditional media and makes students not enthusiastic about learning even though the learning media should be beneficial and vital. Arsyad (in Wahyuningtyas, R & Sulasmono, B.S. 2020: 24) suggested that teaching media in the teaching and learning process should generate new desires and interests, motivation and stimulation of learning activities, and even bring psychological effects on students. It is so that the concept of learning innovation is maintained and sustainable. It aligns with the opinion of Silviani (2022: 138), who revealed that in this 5.0 era, the spirit of collaboration is still strong, so educational innovation with character will continue. In this study, the link between educational innovation and the snakes and ladders games is a form of assistance or solution that can be given to the problems uncovered in educational innovation in the era of society 5.0, i.e., the lack of students' motivation in learning. This media can also be a solution so that the problem can be resolved.

The learning media used are also, of course, very interesting ones and able to be in the concept of society 5.0. In this study, the media were neo-snake and ladder game media. These media were taken from the development of the snake and ladder game. According to Fadliansyah (2019:14), the neo-snake and ladder game is a development or update of the usual snake and ladder game. Several components have been developed in this game, such as board form, rules, and dice. In addition, concerning the neo-snake and ladder game media, Syarifah (in Fadliansyah, 2019: 14) stated that this game-shaped media is crucial for children's development in learning and stimulates students to be even more enthusiastic in learning. Hence, this media would be utilized in one of the social studies lessons, and in subsequent findings, it was also found that students experienced a decrease in enthusiasm for learning in social studies. In addition, Syarifah (in Fadliansyah, 2019:15) added that development in media in the form of a snake and ladder game is critical as it can create a stimulus that aims to increase student motivation and achievement in learning.

Based on an interview conducted with one of the teachers, it was revealed that in social studies, students tended to get bored easily and lose enthusiasm because the teacher's teaching pattern was unsuited and did not utilize suitable media. Therefore, neo-snake and ladder game media are expected to allow students to learn more enthusiastically, and learning goals can be achieved.

METHOD

This experimental research used a true experimental design. Meanwhile, the form of the design chosen was a pretest-posttest control design, where two groups were chosen at random, as presented in Table 1.

Table 1. Control and Experiment Classes

Class	Treatment
Control	Classes without neo-snake and ladder game media in social studies lessons
Experiment	Classes using neo-snake and ladder game media in social studies lessons

The population was the fourth-grade students of SDN Cipocok Jaya in the 2022/2023 academic year. Meanwhile, the sample involved in this study amounted to 35 students. The number of students was then divided into 15 males and 20 females. The sampling technique employed was simple random

sampling. In addition, the data collection method in this study utilized tests and observations. Then, the data analysis techniques used in the questions consisted of difficulty level, discrimination test, and reliability. In addition, pre-requisite tests were employed, such as normality, homogeneity, and t-test in the pretest and posttest.

The social studies ability test was first tested in the trial class. The results were analyzed by item analysis, including validity, reliability, level of difficulty, and differentiating power, so that items obtained would be used for the social studies ability test. Then, the social studies ability test results in the sample class were analyzed by the classical completeness test, proportion test, two-average difference test, and improvement test. Furthermore, the observation sheet was to see student activities during learning in class, whether they showed learning activities when using neo-snake and ladder game media; this observation sheet was used for five meetings. The results of the observations are as follows.

Table 2. Results of the Observation Sheet

Meeting	Average	Criteria
1	3.4	Very Good
2	3.5	Very Good
3	3.4	Very Good
4	3.3	Very Good
5	3.5	Very Good

Based on the results of these observations, it can be stated that the learning implementation, in general, was categorized as very good in five meetings.

RESULTS AND DISCUSSION

Table 2 presents that each meeting experienced a very good average value even though it was not stable. In several meetings, the average value was 3.4 and 3.5, with very good criteria. The observations made at this meeting also showed the students' enthusiastic attitude toward learning. Student responses were also related to the media being played, which was very exciting, and they wanted to continue playing. Further, the results of the interviews are as follows.

Researcher : How do you feel about the media you play?
Student : It is fun.
Researcher : Is this media suitable for social studies lessons?
Student : Yes. Because of this media, I became enthusiastic about learning social studies.

Therefore, for the first meeting, students really liked this media as it could make them excited and motivated to learn, especially in social studies lessons. Walgito (in Fiterani, 2015: 121) also revealed that motivation is fundamental since it has the power contained within individuals causing them to act. However, it differs from the value of 3.3 at the 4th meeting. Even though the criteria were very good, they decreased. Then, interviews were conducted, and showed the results that 1) The average score of students dropped because of boredom in the game; 2. The teacher also experienced boredom and made the learning situation less enthusiastic.

Even though the score was still good, responding and asking the students is crucial because it would get worse if left unchecked. Fortunately, at the 5th meeting, the score went up because an evaluation had been done.

In the first activity, as usual, the teacher carried out initial activities, such as preparing students to study, praying, providing explanations regarding the learning objectives, and ending with motivation so that students could be more enthusiastic about participating in the learning process. This activity went well from the first to the last meeting. Afterward, the teacher began to enter the learning process using the neo-snake and ladder game media. There were several steps in the learning process using neo-snake and ladder games. The process also went very well, even though there were many obstacles during the process. For example, it was challenging to organize students to form groups, and the class situation was very noisy, resulting in the teacher's direction being very difficult to get to the students. Besides, in conveying the neo-snake and ladder game rules, the teacher had to take several steps and repeat the rules so that students understood. After doing it several times, finally, the students could be conditioned well because there was help from their homeroom teacher, and in the end, the learning process using neo-snake and ladder game media went smoothly and got a score in the very good category. The last activity was closing. In this activity, the teacher gave feedback by asking again what had been done at each meeting, obtaining an average score above 3.00 in the good category despite shortcomings. Not forgetting, the teacher also appreciated all students, who were happy to follow the learning process. It ended with praying together. The board form and the rules for neo-snake and ladder game media are as follows.

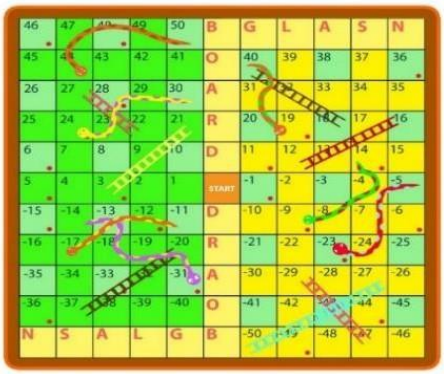

Figure 1. Neo-snake and ladder game media's board form

Neo-snake and ladder game is an update of the usual snake and ladder game. In fact, the game system from this media is the same as the snake and ladder game system in general, and only the researchers changed the game board by subtracting some numbers, which initially amounted to 100 boxes with 100 positive integer numbers, to be 50 and added negative numbers (negative integers) totaling 50 squares. Indeed, the whole box depicted on the board is 100 but divided by two: 50 squares for positive integers (1-50) and 50 squares for negative integers (-1 to -50).

Another difference between this modified snake and ladder board and the usual one, in general, is that it is known that generally the start box is in the box numbered one and is usually located in the lower-left corner of the game board. In contrast, in the modified snake and ladder game, the start box is located in the middle of the game board, between positive and negative integers (between numbers 1 and -1 and 50 and -50). The purpose of using this media was to easily remember or develop an understanding of children's initial concepts after being given the most basic concepts.

Moreover, the following is a snake and ladder media game system that the researchers have modified. (1) Before playing, do *hompimpa* or *suit* (rock paper scissors) first to determine who gets the first turn when playing. (2) The first player shuffles the dice, followed by the second player and others. (3) If the dice that comes out is a positive number, the player must step on the negative number box, starting with a step to the left on the snake and ladder board. (4) Addition and subtraction have started to be applied when indirectly adding and subtracting integers. (5) In some boxes, there are questions that the player must answer. Questions are in the starred box. (6) Questions must be taken by the

player in the question box provided. The questions are taken freely. (7) If player A steps towards a box another player has filled, the other player must step again from the starting box. (8) The player who succeeds in answering the most questions in the allotted time is the winner.

Table 3. Social Science Capability Results

Class	N	Mean	Min	Max	Complete
Control	20	60	60	70	71%
Experiment	20	84	70	90	90%

Table 4 results show that the experimental class results were better than the control class, where the experimental class had an average score of 90 out of 20 students, whereas the control class obtained an average result of 71 of the same number of students, 20 students. In addition, the experimental class using neo-snake and ladder game media was indeed better than those without it. Then, the research results analysis can be described as follows. Based on the calculation results with the One-sample Z-Test test, a significance value (α) = 0.000 <0.05 was obtained, stating that H0 was rejected. It denotes that the value of mathematical communication skills of experimental class students reached the minimum completeness criteria limit (KKM = 70). A more detailed explanation is in Table 4 as follows.

Table 4. Test Value Results

	Test Value = 70		
	T	Df	Sig. (2-tailed)
Experiment	9.688	24	0.000

Based on the calculation results using the one-party proportion test, i-count= 1.233 > = 0.396 was obtained, so H0 was rejected. Thus, it can be concluded that the proportion of completeness of students subjected to neo-snake and ladder game media reached 75. In addition, based on the calculation results of the improvement test, the control class results had n-gain results of 0.35 or medium category, while the experimental class got n-gain results of 0,71 or high category. It signifies that the increase in the social studies ability of students in classes using neo-snake and ladder game media was better than student achievement in classes without it. The results of the increased test are in Table 5 below.

Table 5. N-Gain Results

Class	N-gain	Criteria
Experiment	0.71	High
Control	0.35	Medium

Based on the results above, it can be concluded as follows: (1) The classical completeness test of students' social studies ability reached the minimum limit of 70. (2) Social studies ability using neo-snake and ladder game media reached 75% of classical completeness. (3) The average increase in social studies ability using neo-snake and ladder game media was better than the increased average without it. In other words, neo-snake and ladder game media effectively improve students' social studies skills. The same study results were also obtained from the research of Hamdalah (2013) and Sari & Muniroh (2011), revealing that the mathematics learning achievement of students who used the snake and ladder media was higher than students who did not use the media or without the media. Yumarlin (2013) and Zuliana (2010) also supported the research results, concluding that student learning outcomes in classes using neo-snake and ladder game media or snake ladders were higher

than in classes that did not use them. Thus, the use of neo-snake and ladder game media supports the development of students' social studies skills since, by using it, students can experience the learning process, such as discussing, understanding the material, and interestingly practicing questions.

In addition, it also encourages students to learn more actively, work together to solve problems in their groups, find ways to solve these problems, and then provide experiences to students during the learning process. As the study results of Siyam (2015), the snake and ladder media or neo-snake and ladder game provide a direct experience to students during the learning process through good cooperation in one group, and each student is responsible for mastering the learning material section, and teaching material to others in the group.

In this study, the average increase in mathematical communication skills in classes using neo-snake and ladder game media learning was also better than in classes without it. It aligns with the research results by Sumantoro (2015), Yumarlin (2013), and Chabib, Djatmika & Kuswandi (2017), stating that learning using neo-snake and ladder game media has increased or n-gain, better than those who did not use it.

The improvement of students' mathematical communication skills here can occur because the neo-snake and ladder game media model provides facilities for students to build their knowledge to solve these mathematical communication problems and develop their thinking processes.

CONCLUSION AND SUGGESTIONS

Based on the results and discussion, it can be concluded that learning using neo-snake and ladder game media effectively improves students' social studies skills. It is shown through the following data. (1) Students' average mathematical communication ability reached the minimum limit of 70. (2) Social studies communication skills using neo-snake and ladder game media reached 75% of classical completeness. Besides, (3) the average increase in social studies skills using neo-snake and ladder game media was better than the average increase without it.

Therefore, suggestions can be given in the form of a pattern of providing media that should not be used too often, and each giving of learning media must be given different directions and motivations at each meeting so that students do not become bored with learning.

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