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Implementation of Learning Innovations in Society 5.0 to Stimulate Creative Thinking Skills at Higher Education

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Abstrak

Pola belajar mahasiswa berubah seiring dengan tingginya kebutuhan internet. Pada era Society 5.0, model pembelajaran membutuhkan inovasi untuk dapat mengikuti perkembangan teknologi. Penelitian ini bertujuan untuk menguraikan pengaruh antara inovasi pembelajaran Society 5.0 terhadap kemampuan berpikir kreatif mahasiswa pada perguruan tinggi. Responden pada penelitian ini berjumlah 50 mahasiswa Program studi Akuntansi, Manajemen dan Pendidikan Ekonomi yang menempuh mata kuliah Pengantar Manajemen. Teknik pengumpulan data menggunakan e-kuesioner, observasi dan wawancara. Analisis data menggunakan analisis regresi linier berganda. Hasil penelitian menunjukkan bahwa inovasi pembelajaran Society 5.0 yang terdiri dari inovasi model pembelajaran; inovasi media pembelajaran; inovasi strategi pembelajaran dan inovasi pemberian tugas berpengaruh terhadap kemampuan berpikir kreatif mahasiswa pada perguruan tinggi.

Abstract

Learning patterns are changing along with the high demand of the internet. In the era of Society 5.0, learning models need innovation to keep up with technological developments. This study aims to describe the influence between Society 5.0 learning innovations on creative thinking skills in higher education. Respondents in this study amounted to 50 students from the Accounting, Management and Economic Education Study Programs who took the Introduction of Management course. The data collection technique used an e-questionnaire, observation, and interview. Data analysis using multiple linear regression analysis. The results showed that learning innovations of Society 5.0 consisting of learning model innovations; learning media innovations; learning strategy innovations; and assignment innovations had an effect on student creative thinking skills at higher education.

INTRODUCTION

Learning patterns are changing along with the high demand of the internet. Another problem that occurs is that students who take part in lecture programs do not only come from fresh graduates, many students also work while studying, who are required to be able to adapt between work and education. Students are required to learn creatively. The need for a combined learning model, namely online and offline learning, is a challenge for lecturers as professional educators to be able to carry out learning activities.

Survey data conducted by researchers at several universities, during the pandemic Covid – 19, learning activities were carried out online or online. Online learning is defined as a knowledge transfer experience using text, image, audio and video communication with internet network support. Usually, online learning uses the Whatsapp application feature which contains Whatsapp Group as an intermediary for sending messages, images, videos and files to all group members. Applications that have discussion rooms and face-to-face knowledge transfer are Google Meet and Zoom applications, these applications realize lecturers and students to meet and interact virtually with message facilities and presentation activities (Herliandry et al., 2020). The positive impact is that online learning can break the chain of spreading covid-19 (Maria et al., 2021).

However, after conducting initial interviews with 50 students who have participated in online learning for Introduction to Management courses in the Accounting Study Program; Management Study Program; and Economic Education Study Program at University of PGRI Argopuro Jember, there are several obstacles in participating in learning activities, including: (1) poor internet signal; (2) sleepiness; (3) network disconnection; (4) voice of Lecturer is not clear; (5) lack of concentration; and (6) boredom. As a result, the material delivered by the lecturer is not fully absorbed by students. Online learning causes student stress levels to increase. The findings of Maulyda et al.(2020) also state that students metacognition during online lectures is still very low.

In addition, there are also those who implement offline learning activities with restrictions on the number of students. However, offline learning activities are also not without problems, the implementation of the Restriction of Community Activities also results in students who come from outside the province and outside the island not being able to participate. Offline learning is defined as a form of learning that is not at all connected to the internet (Ambarita et al., 2020). Offline learning system means a learning system using a network outside the internet. There is a solution to the problems in higher education, especially about learning, namely by making an innovation by combining various strategies, methods, and learning media by utilizing technology in the era Society (Dewi, 2021).

Learning innovations in Society 5.0 is a part concept to integrate, balance technological development with social problems (Wannesia et al., 2022). Nana & Surahman (2019) state that the POE2WE model is one of the blended learning innovations. Learning innovation in Society 5.0 must be able to have an impact on creative thinking skills. According to Sumarmo et al. (2012) creative thinking skills is the ability to provide new ideas. Trianggono (2017) and Trianggono & Yuanita (2018) states that creative thinking skills is measured by indicators of (1) fluency; (2) flexibility; (3) originality; (4) elaboration.

The findings of Jayawardana & Gita (2018) state that learning innovation in Society 5.0 through the use of Learning Management System has a role and benefits to improve creative thinking skills. Artikasari & Saefudin (2017) explained that learning innovation through the contextual teaching and learning approach can foster creative thinking skills. This research is

intended to describe the effect of learning innovation in Society 5.0 on creative thinking skills. The role of lecturers to provide assistance during student learning activities cannot be underestimated. Lecturers must continue to carry out their obligations to be able to educate the nation's student. The aims of this research is the existence of learning innovations that combine models, media, strategies, information technology, learning tools and the ability of lecturers to develop and combine learning tools and abilities in an effort to stimulate creative thinking skills.

LITERATURE REVIEW

Learning Innovation in Society 5.0

Learning innovations in Society 5.0 is a part concept to integrate, balance technological development with social problems (Wannesia et al., 2022). Technological innovations that are increasingly developing greatly affect the social life of individuals. In the field of education, learning innovations in Society 5.0 are carried out in order to create a learning atmosphere that is in accordance with the principle of independent learning through (1) Increasing the role of students in learning, by training the interaction of students to have enthusiasm in learning discussions; (2) Using game-based learning programs, namely by using games related to sharpening students' learning abilities. (3) Using multimodal learning, such as Project Based Leaning (PjBL) and Problem Based Learning (PBL), by directing learners to be able to combine several components such as writing, images, movements, sounds, and actions in learning activities with the final result in the form of projects (Wannesia et al., 2022). In addition, an innovative learning process can be carried out by lecturers who also need to have skills in the field of digital literacy in training students. Jayawardana & Gita (2018) statsed that learning innovation in the industrial revolution 4.0 consists of learning innovations using (1) articulate audio; (2) youtube; (3) android applications; (4) e-learning; (5) virtual reality. Meanwhile, according to Widaningsih (2019) the characteristics of learning in the 21st century are shown by learning innovation; ICT skills, and orientation to careers and community life. Nana & Surahman (2019) state that the POE2WE model is one of the blended learning innovations.

Creative Thinking Skills

According to Sumarmo et al. (2012) creative thinking skills is the ability to provide new ideas. According to Meika & Sujana (2017) creative thinking skills is the ability with creativity by thinking. Meanwhile, according to Ersoy & Başer (2014) creative thinking skills is one of the thinking skills that facilitates individual learning by realizing his imagination, providing opportunities for him to think. Antika & Nawawi (2017) states that creative thinking skills determine in building personality and action patterns. Based on this understanding, it can be concluded that the creative thinking skills is an ability that provides new ideas by thinking and realizing their imagination and providing opportunities for students according to fluency, flexibility, originality and elaboration. The characteristics of creativity include: cognitive characteristics and non-cognitive characteristics (Wahyuni et al., 2018). Trianggono (2017) states that creative thinking skills is measured by indicators of (1) fluency; (2) flexibility; (3) originality; (4) elaboration.

METHODS

This research approach is categorized as quasi-experimental research. The research focused on 50 students consisting of students of Accounting Study Program; Management Study

Program; and Economic Education Study Program of PGRI Argopuro University of Jember who took Introduction to Management course. The 50 students were divided into 2 classes, namely 25 students in the experimental class and 25 students in the control class. Creative thinking skills were measured using pretest and postest scores. Assessment of Society 5.0 learning innovations, has the following categories:

Table 1. Range of Values and Category

Range of Values	Category
1,1 – 2,0	Not Favourable
2,1 – 3,0	Less Favourable
3,1 – 4,0	Enough Favourable
4,1 – 5,0	Favourable

The research results to answer the hypothesis used multiple linear regression analysis. Data testing was carried out with validity test, reliability test, normality test, homogeneity test with a level of significance of 0.05. The research uses a Likert scale where the value of 1 is the lowest value and the value of 5 is the highest value. Data collection was done by interview and e-questionnaire. The independent variable is learning innovation in society 5.0 which is measured based on (1) learning model innovations (X1); (2) learning media innovations (X2); (3) learning strategy innovations (X3); (4) Assignment Innovation (X4). The dependent variable is creative thinking skills (Y) measured based on (1) fluency; (2) flexibility; (3) originality; (4) elaboration. The results of the study are expected to be able to describe the effect of learning innovation in society 5.0 to stimulate creative thinking skills.

RESULTS AND DISCUSSION

The results of experimental research in the study will be explained starting from learning innovations in society 5.0. The results of learning activities, as well as the results of experimental research using multiple linear regression analysis.

Learning Innovations in Society 5.0

Learning innovation in Society 5.0 can be interpreted as a part concept to integrate, balance technological developments with social problems. In the research, the implementation of learning innovation includes combining learning activities as follows:

Table 2. Learning Innovations in Society 5.0

Variable	Learning Activities	References
Learning Model Innovations	Combining learning model with POE2WE and Problem Based Learning. Through the POE2WE model, starting with (1) prediction, namely the lecturer gives initial questions whose answers are predictions from students; followed by (2) observation, by conducting games that aim to prove student predictions; next is done by (3) explanation, namely explaining the results of simulations or games carried out; then (4) elaboration is done by explaining the suitability with everyday life. Furthermore, (5) writing and (6) evaluation is done by writing down discussions and evaluation results on learning topics. Problem-based learning is done by providing several case studies for students to solve.	Nana and Surahman (2019); Wannesia (2022)
Learning Media Innovations	Combining technology, during learning activities the media used includes a combination of smart TV, Whiteboard and its devices, learning videos, applications, Learning Management	Jayawardhana and Gita (2020); (Dewi, 2021)

	System, WhatsApp Group. Some learning media during learning activities are used together, some are not used together	
Learning Strategy Innovations	Learning activities are carried out through a combination of discussions, simulations, and games in each material. Kegiatan pembelajaran dilakukan dengan carried out through a combination of discussions, simulations, and games in each material.	Artikasari and Saefudin (2017); (Widaningsih, 2019) Wannesia (2022);
Assignment Innovations	Consists of giving assignments that are sent directly, some are sent through the Learning Management System (LMS) application. So that it can improve students ability to use information technology. Providing material and assignments is done by using LMS and is done online/paperless. The goal is that students can improve their ability to use technology, especially in learning activities.	Jayawardhana and Gita (2020); (Dewi, 2021)

Source : primary data, 2023

Before conducting experimental research, lecturers compile learning tools to plan learning activities. Lecturers divided 50 students into 2 (two) classes, namely experimental and control classes. Then, the lecturer conducts learning activities and conducts learning evaluations. Based on the results of the quasi-experimental research activities that have been carried out, both experimental and control classes have improved creative thinking skills which are presented as follows:

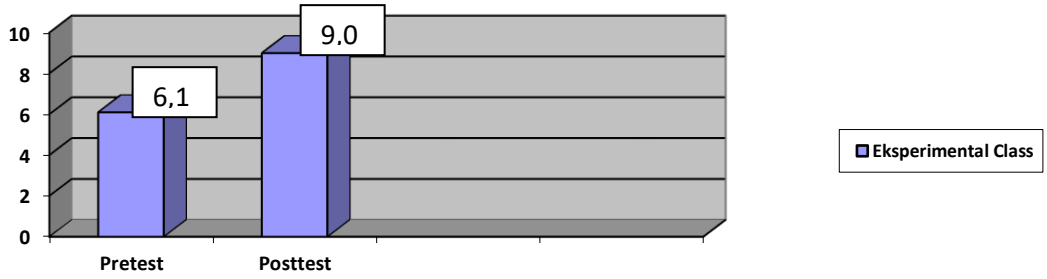

Figure 1. Graph of Improvement of Creative Thinking Ability of Experimental Class
Source : primary data, 2023

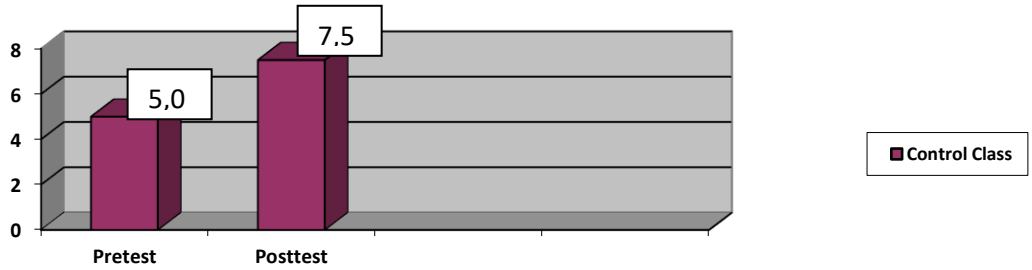

Figure 2. Graph of Improvement of Creative Thinking Ability of Control Class
Source : primary data, 2023

Based on the results of the pretest and posttest scores of the experimental and control classes, it can be concluded that there is an increase in creative thinking skills. However, the increase between the experimental class and the control class is different. The pretest value in the experimental class was 6.1 and the posttest was 9.0. The experimental class value increased by 2.9 points (n - gain = 0.74). While the pretest value in the control class was 5 and the posttest value was 7.5. The control class value increased by 2.5 points (n - gain = 0.50). It can be concluded

that the increase in creative thinking skills in the experimental class was 75% and the increase in creative thinking skills in the control class was 50%. Based on the results of the pretest and posttest scores, it can be concluded that the implementation of learning in the Society 5.0 era can stimulate students' creative thinking skills.

Learning Innovation in Society 5.0 and Creative Thinking Skills Assessment Results

The assessment of learning innovation indicator in society 5.0 are obtained from the student assessments of learning innovation in Society 5.0 indicators that consisting of learning model innovation, learning media innovation, learning strategy innovation and assignment innovation. The results of the assessment indicators are presented as follows:

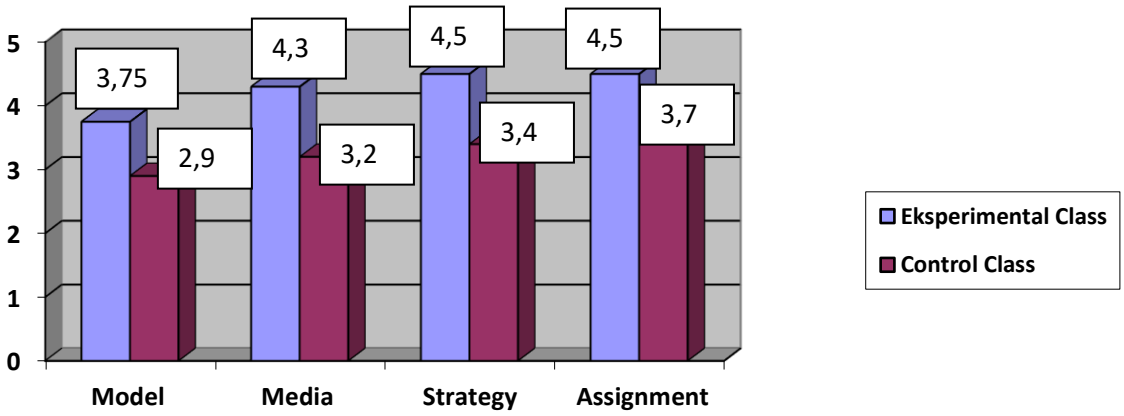

Figure 3. Average Results of Learning Innovation Indicators in Society 5.0
Source : primary data, 2023

Based on Figure 3, the average value of students related to learning innovation indicators between experimental and control classes has a difference. The experimental class assessment has a higher average than the control class. In the experimental class, the element of learning model innovation has an average value of 3.75 (category is enough favourable) while the control class learning model has an average value of 2.9 (category is less favourable). For the assessment of learning media innovation in the experimental class has an average value of 4.3 (category is favourable) and the control class has an average value of 3.2 (category is enough favourable). Furthermore learning strategy innovation in the experimental class has an average value of 4.5 (category is favourable) and the control class has an average value of 3.4 (category is enough favourable). For the experimental class, the assessment of assignment innovation has an average value of 4.5 (category is favourable) and the control class has an average value of 3.7 (category is enough favourable). The assessment of the learning innovation was carried out by distributing e-questionnaires to students after the learning was completed.

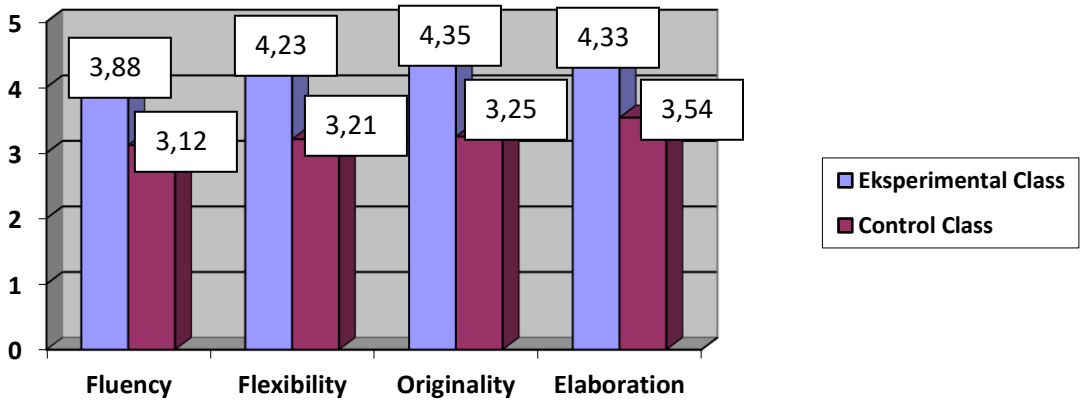

Figure 4. Average Results of Creative Thinking Skills
Source : primary data, 2023

Based on Figure 4, the average value of students related to the innovation indicator of creative thinking skills between the experimental class and the control class has a difference. The experimental class assessment has a higher average than the control class. In the experimental class, the fluency element has an average value of 3.88 (category is enough favourable) while the learning model control class has an average value of 3.17 (category is enough favourable). For the flexibility element, the experimental class had an average score of 4.23 (category is favourable) and the control class had an average score of 3.21 (category is enough favourable). Furthermore, the originality assessment in the experimental class had an average score of 4.35 (category is favourable) and the control class had an average score of 3.25 (category is enough favourable). For the experimental class, the elaboration assessment had an average score of 4.33 (category is favourable) and the control class had an average score of 3.54 (category is enough favourable). The assessment of creative thinking skills was carried out by distributing e-questionnaires to observers after the lesson was completed.

Multiple Regression Analysis Result

Data analysis was carried out after the data obtained from the results of the e-questionnaire were declared complete. The data was then tabulated. After that, the data were tested for validity, tested for reliability, tested for homogeneity, and tested for normality. The data that has been processed through SPSS version 22.00 has fulfilled all assumptions. Then the data was further analysed using multiple linear regression analysis. The results of multiple linear regression analysis are presented as follows:

Table 1. Coefficients Model

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		β	*Standar Error*	*β*		
1	*Constant*	1.578	1.264		1.248	.002
	Learning Model Innovation	.496	.131	.473	1.379	.002
	Learning Media Innovation	.203	.120	.347	1.692	.001
	Learning Strategy Innovation	.303	.153	.382	1.979	.002
	Assignment Innovation	.150	.077	.379	1.938	.003

a. *Dependent Variable : Creative Thinking Skills*

Based on the results of multiple linear regression analysis in Table 1, it can be concluded that the Society 5.0 Learning Innovations variable, which consists of learning model innovations; learning media innovations; learning strategy innovations; and assignment innovations had an effect on student creative thinking skills variables. This is evidenced by a significance value of 0.002 (learning model innovations and learning strategy innovations); a significance value of 0.001 (learning media innovations); and a significance value of 0.003 (assignment innovations) where the significance value is smaller than 0.05.

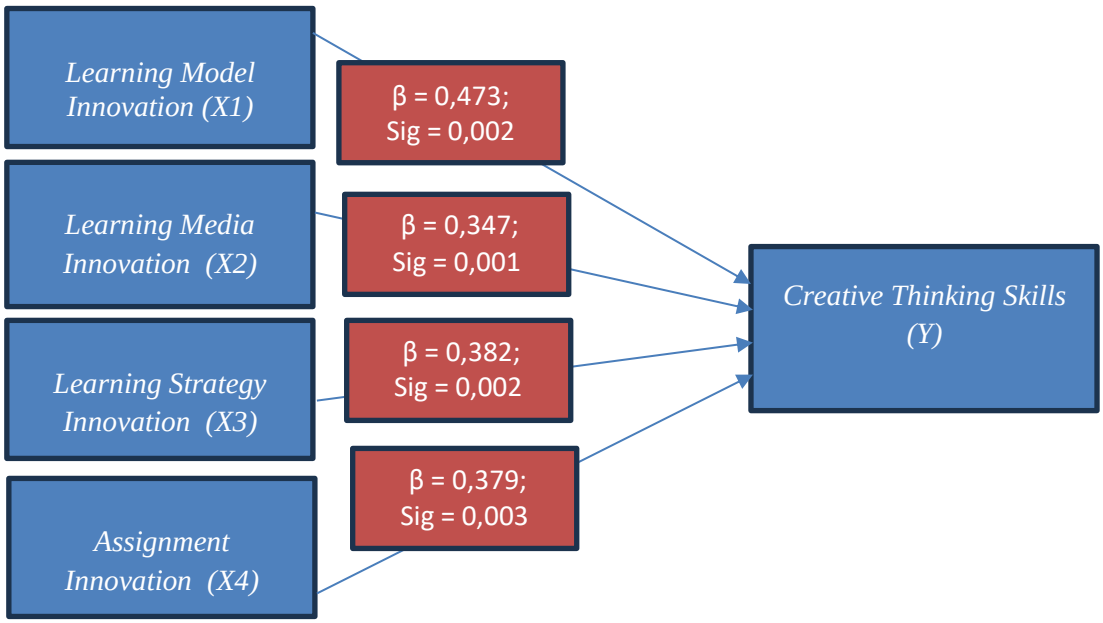

Figure 5. Multiple Regression Analysis Result
Source : primary data, 2023

Learning Model Innovation to Creative Thinking Skills

This study used a combination of PO2WE model. Through the POE2WE model, starting with (1) prediction, namely the lecturer gives initial questions whose answers are predictions from students; followed by (2) observation, by conducting games that aim to prove student predictions; next is done by (3) explanation, namely explaining the results of simulations or games carried out; then (4) elaboration is done by explaining the suitability with everyday life. Furthermore, (5) writing and (6) evaluation is done by writing down discussions and evaluation results on learning topics. Problem-based learning is done by providing several case studies for students to solve. Statistical result shows that learning model innovation (X1) had effect of creative thinking skills (Y) which is evidence β = 0,473; and sig = 0,002. Some influence between learning model innovation on creative thinking skills is explained by the indicator that during learning activities, lecturers educate students to be able to think creatively through problem solving in discussion activities. Lecturers provide problem-based learning that must be solved by students. Then, students are asked to detect problems, explain the core of the problem, discuss, and find solutions to the problems discussed. Students are then asked to evaluate. PO2WE learning activities can improve creative thinking skills because it can improve students' ability to find solutions to solve the problems discussed. The findings strengthen the research of Nana & Surahman (2019) and Wannesia et al. (2022) which state that learning model innovation can be used by lecturers during learning activities to improve creative thinking skills. In addition to the

PO2WE model, lecturers can also use other models to improve students' creative thinking skills and learning outcomes.

Learning Media Innovation to Creative Thinking Skills

This study used a combination of technology, during learning activities the media used includes a combination of smart TV, Whiteboard and its devices, learning videos, applications, Learning Management System, WhatsApp Group. Some learning media during learning activities are used together, some are not used together. Statistical result shows that learning media innovation (X2) had effect of creative thinking skills (Y) which is evidence β = 0,347; and sig = 0,001. Some of the influence between learning media innovation on creative thinking skills is explained by the indicator that during learning activities, lecturers use several technology-based learning media including smart TV, Learning Management System, and WhatsApp Group, Zoom Meeting. The existence of learning media innovations can educate students to learn using technology so that it can improve students' creative thinking skills. However, the efforts of lecturers to utilise various media are also one of the determining factors in improving creative thinking skills. This study findings strengthen research from (Jayawardana & Gita, 2018) and (Dewi, 2021) which state that lecturers need to be creative in using a variety of learning media ranging from learning videos; teaching applications; YouTube; LMS in order to improve creative thinking skills. Through various media, lecturers and students will train their creativity in learning activities.

Learning Strategy Innovation to Creative Thinking Skills

This study used a combination of learning activities are carried out through a combination of discussions, simulations, and games in each material. Learning activities are carried out through a combination of discussions, simulations, and games in each material. Statistical result shows that learning strategy innovation (X3) had an effect of creative thinking skills (Y) which is evidence β = 0.382; and sig = 0.002. The existence of the influence between learning innovation strategies on creative thinking skills is due to the sensitivity of lecturers to the situation when teaching, so that they use various combinations of strategies that make students not bored and remain concentrated listening to the lecturer's explanation. In carrying out learning, lecturers always use and combine various strategies and methods ranging from discussions, simulations, games. Based on observations from observers, students were enthusiastic in following the material presented by lecturers and actively participating in learning activities. This study findings strengthen the research of Artikasari & Saefudin (2017); (Widaningsih, 2019); also (Wannesia et al., 2022) which states that lecturers' strategies in teaching have an influence on students' creative thinking skills. In addition, lecturer efforts to hone sensitivity during teaching can have an influence on creative thinking skills. A combination of strategies is needed so that students are always honed in their knowledge and creative thinking skills.

Assignment Innovation to Creative Thinking Skills

Consists of giving assignments that are sent directly, some are sent through the Learning Management System (LMS) application. So that it can improve students ability to use information technology. Providing material and assignments is done by using LMS and is done online/paperless. The goal is that students can improve their ability to use technology, especially in learning activities. Statistical result shows that assignment innovation (X4) had an effect of creative thinking skills (Y) which is evidence β = 0.382; and sig = 0.002. There is an influence between assignment innovation and creative thinking skills because lecturers have a variety of

tools to provide assignments to students. The assignments given can be given a combination ranging from collecting assignments directly and collecting assignments via LMS. Through a combination of assignments that are different from each other, students become creative in utilising existing technology. Thus increasing the ability of students to think creatively and innovatively in submitting assignments given by lecturers. The existence of a quick response from the lecturer after students submit their assignments, as well as the opportunity to make improvements, results in students always being given room for creativity to improve their abilities to the grades obtained. This study findings support (Jayawardana & Gita, 2018) also (Dewi, 2021) which states that the various ways lecturers give assignments to students have an effect on increasing students' creative thinking skills.

Based on the results of observations and interviews, the influence of learning innovation in era Society 5.0 variables on creative thinking skills is due to several indicators, including: (1) Society 5.0 learning innovations carried out by lecturers use several digital technologies that become a stimulus for students to be active in class during learning activities; (2) in managing the class, lecturers always invite students to discuss so that the classroom atmosphere becomes lively; (3) Lecturers use varied learning methods and learning strategies to provide a stimulus for students to be active in class; (4) student activeness during Society 5. 0 shows that students understand the meaning of the material presented by the lecturer; (5) because students understand the material provided by the lecturer, when doing the posttest, many questions are answered correctly, causing high student posttest scores; (6) students are active in classroom discussion activities to discuss learning materials. This research results supports Jayawardana & Gita (2018) state that learning innovation in Society 5.0 through the use of Learning Management System has a role and benefits to improve creative thinking skills. This research also supports Artikasari & Saefudin (2017) research that explained learning innovation through the contextual teaching and learning approach can foster creative thinking skills.

CONCLUSION

Learning innovations in Society 5.0 provides one solution so that learning activities in the classroom always provide comfort to students and train students to be able to think creatively. Based on the results of the study, it can be concluded that learning innovations in Society 5.0 which consists of learning model innovations; learning media innovations; learning strategy innovations; and assignment innovations has a significant effect on creative thinking skills. Based on the research results, it is expected that there will be an implementation of learning innovations in Society 5.0 by combining methods, strategies, learning tools, and materials to support the improvement of creative thinking skills. Statistically, learning innovation in Society 5.0 affects creative thinking skills. This is evidenced by the statistical results that (1) Learning model innovation (X1) had effect of creative thinking skills (Y) which is evidence $\beta = 0{,}473$; and sig = 0,002; (2) Learning media innovation (X2) had effect of creative thinking skills (Y) which is evidence $\beta = 0{,}347$; and sig = 0,001; (3) Learning strategy innovation (X3) had an effect of creative thinking skills (Y) which is evidence $\beta = 0.382$; and sig = 0.002; (4) Assignment innovation (X4) had an effect of creative thinking skills (Y) which is evidence $\beta = 0.382$; and sig = 0.002. Based on the results of observations and interviews, the influence of learning innovation in Society 5.0 variables on creative thinking skills is due to several indicators, including: (1) learning innovations in Society 5.0 carried out by lecturers use several digital technologies that become a stimulus for students to be active in class during learning activities; (2) in managing the class, lecturers always invite students to discuss so that the classroom atmosphere becomes lively; (3) Lecturers use

varied learning methods and learning strategies to provide a stimulus for students to be active in class; (4) student activeness during Society 5. 0 shows that students understand the meaning of the material presented by the lecturer; (5) because students understand the material provided by the lecturer, when doing the posttest, many questions are answered correctly, causing high student posttest scores; (6) students are active in classroom discussion activities to discuss learning materials.

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