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APPLICATION OF THE LIGEKA_21 MODEL TO DEVELOP 21ST-CENTURY SKILLS FOR STUDENTS IN LEARNING GEOGRAPHY IN HIGH SCHOOL

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ABSTRACT

21st Century learning skills are essential. In the revision of the 2013 curriculum in 2017, it has been explicitly stated that 21st-century skills introduced with the term 4 C (Critical thinking and problem solving, creativity and innovation, communication skills and collaboration skills) are used as an orientation in learning at school. To improve students' 21st Century Skills in Social Studies learning, a learning model called the LIGEKA_21 was developed. The results of his research show that the use of the LIGEKA_21 model can significantly improve 21st-century skills (4C) for both students in the high school group and the middle and lower group schools. Prominent results include high enthusiasm for learning, active and creativity in producing learning outputs, posters of critical and creative teaching materials, poetry based on social studies teaching materials, high mastery of social studies knowledge, development of communication skills and skills and collaboration. The results of this good research need to be developed more broadly, not only in junior high schools but also need to be developed in senior high schools. Good learning outcomes implemented using face-to-face (offline) patterns are not necessarily suitable in the Covid-19 era, which are carried out with online learning patterns, so they must be developed or adapted based on e-learning. Based on these conditions, this research will develop an online learning pattern based on the LIGEKA 21 model, which will then be compared with the LIGEKA_21 model with face-to-face (offline) learning patterns in high school.

Keywords: *21st Century Skills; LIGEKA_21 Model; Geography Learning*

INTRODUCTION

Rapid world socio-economic changes based on information and communication technology in the 21st century have dramatically changed the demands of the workforce (Malik 2018; Whorton et al. 2013). Today's job market requires critical thinking and the ability to interact with people from many cultural backgrounds. In other words, if today's youth are to compete in a global

society, they must also be capable communicators, creatives, critical thinkers and collaborators (having "4K / 4Cs)" (Safri and Jamaludin 2022). Learning must be transformed to enable students to acquire creative thinking. This flexible problem-solving, collaboration and innovative skills will be needed to be successful in work and life (AMA 2012). North Central Regional Educational Laboratory and the Metiri Group, (2009) have developed a framework for 21st-century learning, which describes the skills students need to thrive in today's global economy: digital age literacy, inventive thinking, effective communication, and productivity. Partnership 21 defines 21st-century learning abilities, containing 21st-century contemporary subjects and themes referred to as "Core Themes and Subjects," which consist of 4 components, namely 1) learning and innovation skills, 2) life and career skills," and 3) information skills, media, and 4) technology skills.

The 2013 curriculum has brought about a new policy in education in Indonesia, namely the development of scientific attitudes and behaviour in learning through applying a scientific approach at all levels of education. Meanwhile, specifically related to social studies subjects, geography is emphasised as a platform for social studies learning. The use of this scientific approach expected that students will become critical, creative and innovative individuals and are encouraged always to ask questions and try to answer them scientifically by collecting data or evidence (Kementrian Pendidikan dan Kebudayaan 2017). Even in 2017, regarding the revision of the 2103 curriculum that was implemented, it was more certainly said that 21st-century skills which were introduced with the term 4 C (Critical thinking and problem-solving, Creativity and innovation, communication skills and collaboration skills) coupled with the quality of character and literacy were used as an orientation and references in learning in schools (Kementrian Pendidikan dan Kebudayaan 2017).

Geography in the context of geographic literacy can not only function to foster a sense of nationalism but also through components of interaction, interconnection and implications; geographic literacy has the potential to develop students' critical and creative thinking in geography learning. For example, why do Indonesia and the Philippines often experience earthquakes

and volcanoes, while ASEAN countries rarely?; Why did Typhoon Hayan hit the Philippines and Vietnam while Indonesia and other ASEAN countries were not affected by the disaster; Why does Indonesia still import salt, sugar and rice even though Indonesia is an archipelagic and agricultural country? This condition indicates that developing geography learning in high school is still needed.

In school geography, the term literacy follows a textbook model but is also a teaching method that wants students to know details about natural landscapes, limited to sterile knowledge about natural and anthropogenic characteristics of the world (Galani 2016). The results of the initial survey on geography as a learning platform and geographic literacy have not been understood and have not been implemented in schools; the aspects that are known are only limited to statements that all social phenomena exist, are located, are located or are located on the face of the earth with all their interrelated variations (Sugiyanto, Maryani, and Ruhimat 2018).

To improve students' 21st Century Skills in Social Studies learning, a learning model called the LIGEKA_21 was developed (Sugiyanto 2020). This model relies on constructivism learning theory by combining teaching materials based on geographic literacy, integrating PBL and cooperative TSTS models and developing media for learning poetry and posters/magazine. The results of his research show that the use of the LIGEKA_21 model can significantly improve 21st-century skills (4C) for both students in the high school group and the middle and lower group schools. The results that stand out include high enthusiasm for learning, very active and creativity in producing learning outputs, including posters of critical and creative teaching materials, poetry based on teaching materials, high mastery of knowledge, development of communication skills and social and collaboration skills.

These good learning outcomes are not necessarily suitable and must be adapted to the Covid 19 era, which prioritizes online learning patterns. Therefore, so that the LIGEKA_21 learning model can be applied to online learning patterns, the model needs to be adapted first by optimizing the interaction pattern in online learning, changing the pattern and learning interaction between teachers and students and students. Based on these conditions, this research will try to

develop online learning patterns based on the LIGEKA 21 model and compare these results with online learning patterns.

MATERIALS AND METHODS

The research was conducted at SMA Negeri 1 Karanganyar, Kebumen Regency, Central Java. This study used a quasi-experimental design method with one treatment group and one pattern control group or The Matching Only Pretest-Postest Control Group Design (Creswell. 2014). The experimental group class using the LIGEKA_21 model with an online learning pattern (the control group used the LIGEKA_21 model with an offline (face-to-face) learning pattern). The population of this study was students of SMAN Karanganyar Kebumen. Sampling used simple random sampling. The data collected in this study were: data on test results to obtain learning outcomes on aspects of knowledge, and critical thinking, 2) data on student work in the form of posters and poetry, 3) data on student assignment results in the form of task reports on exploring knowledge of teaching materials. Data analysis used the t_test statistical test assisted by SPSS Software to process test results data, questionnaires and observation sheets for 21st-century skills. As well as descriptive analysis for questionnaires on student satisfaction with learning models.

Data collection techniques were carried out using observation sheets, questionnaires, expert assessment sheets, interviews with users (teachers and students), and written tests by students. The measured aspects are the 4C skills of students who use observation sheets, questionnaires and interviews. Here's a more detailed explanation.

RESULTS AND DISCUSSION

Critical Thinking Skills Data Description

Data on critical thinking skills were obtained from students' pretest and posttest scores as the primary data and the results of the Student Worksheets (LKPD) scores as supporting data. The results of the average pretest and posttest scores for each indicator of critical thinking skills for Offline Classes and Online Classes are presented in **Table 1**

Table 1. Pretest And Posttest Results Of Indicators Of Critical Thinking Skills For Experimental Class I (Offline Class) And Experiment II (Online Class)

Critical Thinking Skills Indicator	Question Number	Offline Average		Online average	
		Pretest Value	Posttest Value	Pretest Value	Posttest Value
Analytical Skills	1	2,3	3,2	2,7	3,1
Interpretation Skills	2	1,7	2,8	2,5	2,9
Argumentation Skills	3	1,8	2,8	2,6	3,1
Conclusion Skills	4	1,6	2,9	2,4	2,9
Average critical thinking skills		1,85	2,925	2,55	3
Pretest-posttest difference		1,075		0,45	

In measuring students' critical thinking skills, apart from using test questions, they also use Student Worksheets (LKPD). The tasks in Student Worksheets (LKPD) are more flexible/open in developing/ strengthening students' high-level thinking. Therefore, the results of the Student Worksheets (LKPD) are used as a reference/strategy for strengthening the achievement of students' critical thinking. Supporting data obtained from Student Worksheets (LKPD) questions, with three indicators of critical thinking skills as a reference for the measurement, are presented in **Table 2** below.

Table 2. The Average Indicator Of Critical Thinking Skills In The LIGEKA_21 Model Is Based Online And Offline Through Student Worksheets (LKPD)

Critical Thinking Skills Indicator	LIGEKA_21 Online	LIGEKA_21 Offline
Analysis	3,7	3,8
argument	2,9	2,9
Conclusion	3,1	3,1

Based on the data in **Table 1** and **Table 2**, it is possible to present the details of the score indicators for students' critical thinking skills in the Offline class and Online class as follows:

Analysis Skills

The initial average score for analytical indicators in the Offline class has the highest score, which is 2.3 (23%). Students who exceed the average class score of 14 people, with the answers given, can analyze the location, impact, and problems related to Indonesia's strategic position accompanied by appropriate solutions but have not yet provided an explanation of the solutions provided. After treatment, the average score changed to 3.2 (32%), the highest average.

Meanwhile, the online class scored the highest at 2.7 (27%). Students who

exceed the average class score of 23 people, with the answers given, can analyze the location, impact, and problems related to Indonesia's strategic position accompanied by appropriate solutions but have not yet provided an explanation of the solutions provided. After following the learning for two meetings, the average score changed to 3.1 (31%).

Interpretation Skills

The interpretation indicator in the Offline class obtained an initial average score of 1.7 (17%). Students who exceeded the average class score of 22 people with the answers given were able to interpret the characteristics of the area objectively but did not match the question indicators and had not written them coherently. After treatment, the average score changed to 2.8 (28%).

The interpretation indicator in the online class obtained an initial average score of 2.5 (25%). Students who exceeded the average class score of 21 people with the answers given were able to objectively interpret the characteristics of the area according to the question indicators but have not been able to write them coherently. After following the learning for two meetings, the average score changed to 2.9 (29%).

Argumentation Skills

The initial average score of the argumentation indicator in the Offline class was 1.8 (18%). Students who exceed the average class score of 20 people, with the answers given, can provide arguments or reasons rationally related to the causes and solutions of cases of illegal fishing in Indonesia that are sustainable with the potential and management of marine resources but are not coherent and the descriptions are less detailed. After treatment, the average score changed to 2.8 (28%).

The initial average score of the argumentation indicator in the online class was 2.6 (26%). Students who exceed the average class score of 20 people, with the answers given, can provide rational and coherent arguments or reasons related to the causes and solutions of cases of illegal fishing in Indonesia that are sustainable with the potential and management of marine resources but the descriptions are not detailed enough. After following the learning for two meetings, the average score changed to 3.1 (31%).

Conclusion Skills

The initial average score on the conclusion indicator in the Offline class has the lowest score, 1.6 (16%). For

students who exceed the average class score of 17 people, the answers given can provide logical conclusions but are not appropriate to the subject matter and are not coherent regarding the benefits of the sea highway for Indonesia, which are sustainable with the development of sea lanes in Indonesia. After treatment, the average score changed to 2.9 (29%).

The initial average score on the conclusion indicator in the online class has the lowest score, 2.4 (24%). The answers can provide logical conclusions according to the subject matter for students who exceed the average class score of 24 people. Still, they are not coherent regarding the benefits of the sea highway for Indonesia, which are sustainable with the development of sea lanes in Indonesia. After participating in two learning meetings, the average score changed to 2.9 (29%).

Data Description of Creative Thinking Skills

Indicators of Creative Thinking skills used in the assessment include Fluent Thinking, Flexible Thinking, and Detailed Thinking. Data on creative thinking skills were obtained from pretest and posttest scores as the primary data. Besides that, strengthening creative thinking skills can be seen from the results of the product work, namely in the form of physical posters (Mading) for the Offline class and padlet works for the Online class.

In this study, two classes were used: Experimental Class I, a sample or class treated with the LIGEKA_21 model based on offline learning, and Online Class, a sample or class treated with the online-based LIGEKA_21 model. The scoring of creative thinking skills in the pretest and posttest is adjusted between the indicators and the questions. The following details the average pretest and posttest scores for each indicator presented in **Table 3**

Table 3 Pretest and Posttest results of indicators of creative thinking skills for experimental class I (Offline Class) and Experiment II (Online Class)

Creative Thinking Skills Indicator	Question Number	Offline Average		Online average	
		Pretest Value	Posttest Value	Nilai Pretest	Pretest Value
Fluent Thinking Skills	1 dan 3	2,8	3,4	2,9	3,3
Flexible Thinking Skills	2 dan 4	2	3	2,7	3
Detailed Thinking Skills	3 dan 4	2,6	3,3	2,8	3,1
Average creative thinking skills		**1,85**	**2,425**	**2,1**	**2,35**
Pretest-posttest difference		**0,575**		**0,25**	

To find out students' creative skills more concretely, supporting data is also used by assigning students to do product works in the form of posters and pallets. The results of the assessment of the supporting data obtained from the works are presented in **Table 4** below.

Table 4 Average indicators of creative thinking skills in the online and offline LIGEKA_21 model through work

Creative Thinking Skills Indicator	LIGEKA_21 Online	LIGEKA_21 Offline
Fluent Thinking Skills	3,1	2,8
Flexible Thinking Skills	3,1	3,1
Detailed Thinking Skills	2,3	2,9

Based on the data in **Table 4**, it can be explained the details of the score of the creative thinking indicator skills of the Offline Class and Online Class students as follows:

Fluent Thinking Skills

The initial average score for the Fluent Thinking indicator in the Offline class has the highest score, which is 2.8 (28%). With the answers given, students who exceeded the average class score of 19 could think of many concepts and spark ideas smoothly but not quite right. After treatment, the average score changed to 3.4 (34%), the highest average.

The initial average score for the Fluent Thinking indicator in the Online class has the highest score, which is 2.9 (29%). Students who exceed the average class score of 24 people, with the answers given, can already think of many concepts and spark ideas smoothly but not quite right. After treatment, the average score changed to 3.3 (33%), the highest average.

Flexible Thinking Skills

On the Flexible Thinking indicator in the Offline class, the initial score is 2 (20%), the lowest average. For students who exceeded the average class score of 12 people, the answers given were able to provide answers that varied according to the literature but were incorrect. After treatment, the average score changed to 3 (30%), the lowest average.

For the Flexible Thinking indicator in the online class, the initial score was 2.7 (27%), the lowest average. For students who exceeded the average class score of 24 people, the answers given were able to provide answers that varied according to the literature but were incorrect. After treatment, the average score changed to 3 (30%), the lowest average.

Detailed Thinking Skills

The initial average score for the Detailed Thinking indicator in the Offline class

obtained a score of 2.6 (26%). Students who exceed the average class score of 19 people with the answers given can appropriately develop ideas from teachers or friends. After treatment, the average score changed to 3.3 (33%).

The initial average score for the Detailed Thinking indicator in the Online class was 2.8 (28%). Students who exceeded the average class score of 27 people with the answers given were able to develop ideas from teachers or friends appropriately. After treatment, the average score changed to 3.1 (31%).

Requirements Test Results

Homogeneity Test

The homogeneity test uses the Levene Test method with a significance level of 5%, while the normality test uses the Kolmogorov-Smirnov method with a significance level of 5%.

Table 5. Calculation Results of Homogeneity Test

Class	Df1	Df2	Sig.	explanation
XI IPS 1 XI IPS 2 XI IPS 3 XI IPS 4	3	139	0,532	Homogeneous

The homogeneity test decision is determined by comparing p with the significance level. If the p-value> 0.05, then the test results are declared homogeneous. However, if the p-value < 0.05, the test results are not homogeneous. Based on **Table 5**, it can be seen that the value of Sig. p is 0.532, which means Sig. p > 0.05. Thus it can be concluded that the study population is homogeneous.

Normality test

After ensuring that the population is homogeneous, a normality test is performed on the sample group using the Kolmogorov-Smirnov method at a significance level of 5%.

Table 6. Normality Test Results

Class	Number of Samples	p	explanation
LIGEKA_21 Online	36	0,017	Normal
LIGEKA_21 Offline	35	0,006	Normal

The data distribution in the study sample is declared normal if the p-value is > 0.05. If the p-value <0.05, then the distribution of data in the sample group is declared abnormal. Based on **Table 6**, the p-value in each sample group has a p-value> 0.05, so it can be concluded that the research sample is typical.

Hypothesis Test Results

First Hypothesis Testing

Hypothesis testing was carried out using the SPSS version 25 program. Before determining the analysis technique, normality and homogeneity tests were performed to determine that the two groups' normal data distribution and variance were the same. The following results of the calculation of the homogeneity and normality tests for the LIGEKA_21 class Online and the LIGEKA_21 class Offline are presented in **Table 7.**

Table 7. Results Of Homogeneity And Normality Test Calculations

Variable	Class	Normality (Shapiro-Wilk)	Homogeneity (Levene Statistics)
Think critically	LIGEKA_21 Online	0,814	0,457
	LIGEKA_21 Offline	0,485	
Creative Thinking	LIGEKA_21 Online	0,257	0,021
	LIGEKA_21 Offline	0,200	

Based on the results of the homogeneity and normality tests, the method chosen to test the first hypothesis is the T-test method (Independent sample t-test). The data tested is the score of critical thinking skills from the students' pretest and posttest results.

The first hypothesis is formulated as follows:

H0 : $\mu 1 = \mu 2$

Ha : $\mu 1 \neq \mu 2$

H0: There is no difference in using critical thinking skills
model LIGEKA_21 Online based and model LIGEKA_21 based Offline (each method gives the same average result)

Ha: There are differences in critical thinking skills using the Online-based LIGEKA_21 model and the Offline-based LIGEKA_21 model

Test decision:

H0 is rejected if the value of p <0.05, H0 is accepted if the value of p> 0.05

The following results of the calculation of the T-test are presented in **Table 8.**

Table 8. T-Test Results In Critical Thinking Skills

Variable	Class	Mean	Difference Mean	Sig (2-tailed)
Think critically	LIGEKA_21 Online	31,1000	0,450	0,0000
	LIGEKA_21 Offline	50,0971	1,075	

Table 8 is the result of calculating the T-test using the independent sample t-test. Hypothesis testing is done by comparing the value of p or Sig. (2-tailed) with a significance level of 0.05. Based on the results of the t-test calculation, it can be seen that there is an average difference between the two sample groups, namely, the average LIGEKA_21 Online class is 31.1000 while the LIGEKA_21 Offline class is 50.0971. Because the average critical thinking skills score for the LIGEKA_21 Offline class is higher than that for the LIGEKA_21 Online class, the LIGEKA_21 model based on Offline is better than Offline. However, this is not enough to prove to find out whether the mean difference has a significant meaning; a comparison is made between the p or Sig values. (2-tailed) with a significant level of 0.05. If the p-value < 0.05, it can be concluded that the mean is significant, but if the p-value> 0.05, the mean difference is not significant. Based on the T-test calculation using the independent sample t-test, the p-value or Sig. (2-tailed) of the critical thinking variable in the Online and Offline classes is 0.000, which means the p-value <0.05, so it can be concluded that the mean difference in critical thinking skills is significantly significant, which means H0 is rejected, and Ha is accepted; this can also be seen in the average difference in which the Offline class got a higher score was 1.075 while the Online class was 0.450. So it can be concluded that there are differences in critical thinking skills between classes using the online and offline-based LIGEKA_21 model, namely the Offline-based LIGEKA_21 model is better than the Online-based LIGEKA_21 model.

The results of testing the first hypothesis are by the LIGEKA_21 model theory, which can effectively improve 21st-century skills, including critical thinking skills. This study emphasizes comparing online and offline methods applied to the learning process using the LIGEKA_21 model. Regarding critical thinking skills, the Offline method is better applied than the Online method; this is related to the model used. The LIGEKA_21 model is more suitable to be applied directly and face-to-face in class because the learning activities will involve students interacting and discussing freely without being limited by space. This activity builds and stimulates students' critical thinking skills; direct question-and-answer interactions train students to give arguments and conclude a solution to a problem.

Meanwhile, when activities using the LIGEKA_21 model are carried out online, interactions between students and activities of arguing and concluding will be limited by the number of letters or sentences. This is due to implementing the online-based LIGEKA_21 model in presentation activities, and questions and answers are carried out through the comments column on the pallet application. This will be a problem for students not used to expressing opinions or answering questions because they may choose to remain silent and not respond or respond to the issues being discussed so that they are increasingly unfamiliar.

Second Hypothesis Testing

The second hypothesis is formulated as follows:

H0 : $\mu 1 = \mu 2$

Ha : $\mu 1 \neq \mu 2$

Information:

H0: There is no difference in using creative thinking skills model LIGEKA_21 Online based and model LIGEKA_21 based Offline (each method gives the same average result)

Ha: There are differences in creative thinking skills using models The LIGEKA_21 model is Online-based, and the LIGEKA_21 model is Offline-based

Test decision:

H0 is rejected if the value of $p < 0.05$

H0 is accepted if the p-value > 0.05

The second hypothesis was tested using the T-test on two groups to compare the value of creative thinking skills. The results of the T-test calculations for creative thinking variables are presented in **Table 9.**

Table 9. Results of the T-Test for Creative Thinking Skills

Variabel	Class	Mean	Difference Mean	Sig (2-tailed)
Creative Thinking	LIGEKA_21 Online	28,1469	0,25	0,034
	LIGEKA_21 Offline	50,0000	0,575	

Table 9 is the result of calculating the T-test using the independent sample t-test. Hypothesis testing is done by comparing the value of p or Sig. (2-tailed) with a significance level of 0.05. Based on the results of the t-test calculation, it can be seen that there is an average difference between the two sample groups, namely the average LIGEKA_21 Online class is

28.1469, while the LIGEKA_21 Offline class is 50.0000. Furthermore, to find out whether the mean difference has a significant meaning, a comparison is made between the p or Sig values. (2-tailed) with a significant level of 0.05. If the p-value < 0.05, it can be concluded that the mean is significant, but if the p-value> 0.05, the mean difference is not significant. Based on the T-test calculation using the independent sample t-test, the p-value or Sig. (2-tailed) of the creative thinking variable in the Online and Offline classes of 0.034 so that it can be concluded that the mean difference in creative thinking skills is significantly significant, which means that H0 is rejected and Ha is accepted; this can also be seen in the average difference where the Offline class gets a higher score of 0.575 while the Online class is 0.25. So it can be concluded that there are differences in creative thinking skills between classes using the online and offline LIGEKA_21 model, namely the LIGEKA_21 model with the Offline method is better than the LIGEKA_21 model with the Online method.

Testing the second hypothesis shows differences in applying the bold and attractive-based LIGEKA_21 model to creative thinking skills. It can be concluded that the treatment using the lure-based LIGEKA_21 model is better than the online method. Because in the LIGEKA_21 syntax, there is an activity of working on works, where the activities of working on works directly in the form of magazines can train students' creative thinking skills by thinking about how concepts and designs fit the theme but are still interesting. While doing assignments is assisted by using the Canva application, which has many templates and various themes, it is less able to train creative thinking skills because students only choose an existing template, insert pictures, copy sentences, and tidy them up. This process does not train creative thinking skills compared to making wall magazines which are more complex in terms of the tools and materials needed. Judging from the assessment criteria with the maximum score, that is being able to do the job entirely and neatly in the neatness class aspect, daring to be superior.

In contrast, the alluring class is superior in the aspect of completeness. This is because the process of working on works with the help of applications produces works that seem neat but cannot develop the information obtained, so the information displayed is incomplete.

Whereas in making magazine works without the help of an application, the work seems untidy if it cannot be adequately arranged. In the process, students must be directly involved in thinking about many ideas and ideas so that the information obtained can be developed further and the information displayed is complete.

The strengths and weaknesses of the LIGEKA_21 model

The advantage of the online method in the LIGEKA_21 model lies in the order and condition of the class atmosphere, which is calmer and less crowded; besides that, the process of doing work is more straightforward and more practical with the help of an application. Presenting the work can be more time efficient; besides helping students who are embarrassed to ask questions or express opinions directly, they can be represented through writing. Whereas the drawback of the online method in the LIGEKA_21 model lies in the limited space for students to move in aspects of interaction such as question and answer, arguing, and conveying rebuttals if it is felt that the information conveyed by other students is not quite right. In addition, students are also less able to express themselves if only through writing and sentences, which are limited by a large number of letters and words in a comment column. It isn't easy to control students' movement when implementing the TSTS pattern in the LIGEKA_21 model because the teacher can only observe in one pallet room or cannot observe the entire group, so they need to open links one by one. Students' movement as guests is also difficult to control whether the student has entered the entire group link because there is no sign or evidence, and several student accounts have not shown their names or are still anonymous. To work around this, the teacher directs students to write down the word attendance or the group as a sign that students, as guests, have entered the link and studied the material without any questions.

Because this is difficult to control, it can provide opportunities for students who are used to being silent to remain silent in the sense of not responding, asking, or answering. Learning to use online with the help of this application is often constrained by signal, cellphone or laptop lag, no quota, and so on related to network techniques. Creating meaningful learning and applying the TSTS pattern according to the theory is difficult. Lack of interaction between

students and less training of students to respond to problems. In addition, the need for master of technology to facilitate every learning process with online methods, while not all students are capable of that. Online learning also makes the learning process tend to be dull and passive. The advantages of the offline method in the LIGEKA_21 model are that students are free to express themselves in terms of giving arguments and responses without being limited by space, and carrying out presentations in small groups makes students more focused on understanding material and information provided by other groups. Students are directly involved in the learning process to stimulate students thinking skills and quickly build interactions between friends and teachers. In addition, it can create fun and meaningful learning. In doing works, it is more trainable to develop critical and creative skills because they think about many concepts and process the information obtained in the form of works. Meanwhile, the drawbacks of the offline method in the LIGEKA_21 model are that it is difficult to understand the pattern in question if you have never implemented it before, the class is crowded, and the atmosphere is not conducive difficult for teachers to manage classes, it takes longer. In doing the work requires money and time to prepare tools and materials.

CONCLUSIONS

Based on the results of the research and discussion that has been described, it can be concluded as follows:

1. There is a significant difference in critical thinking skills between the online and offline-based LIGEKA_21 models in Geography learning in class XI IPS SMA Negeri 1 Karanganyar Kebumen for the 2022/2023 academic year, namely the offline-based LIGEKA_21 model is more effective in developing critical thinking skills than the LIGEKA_21 based model online.
2. There is a significant difference in creative thinking skills between the online and offline-based LIGEKA_21 models in Geography learning in class XI IPS SMA Negeri 1 Karanganyar Kebumen for the 2022/2023 academic year, namely the offline-based LIGEKA_21 model is more effective in developing creative

thinking skills than the LIGEKA_21 based model online.

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