

Research article

The Effect of Hybrid Project-Based Learning Using Animated Videos on Creative Thinking Skills in Senior High School

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Abstract.

At MAN 2 Kediri City, hybrid learning is limited to the implementation of online learning by using social media and face-to-face learning. This study aimed to determine the effect of hybrid project-based learning using animated videos on developing creative thinking skills, as part of understanding the ability of students to think creatively during the online learning that occurred due to the pandemic. The research used a quasi-experimental method with a pre-test and post-test. The animated video materials were contextualized by describing the conditions of Kediri City. The results showed that hybrid project-based learning using animated videos affected the creative thinking skills. The gain in skills for the experimental class was greater than that of the control class, and this difference was statistically significant.

Keywords: project-based learning, hybrid learning, animated videos, creative thinking competency

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1. Introduction

Geography is a field of study that studies the phenomena on earth, both physical, social, and various problems. Studies and problems in geography are very complex so that it emphasizes that every student must be able to think critically and creatively in addressing a problem in geography. The objectives of 21st century learning themselves emphasize creative thinking, problem-solving, communication, and contribution in providing solutions to real-world problems [1]. It is appropriate for learning geography to follow the times, one of which begins to emphasize the training of creative thinking skills.

Practicing creative thinking skills in geography can be done using a project-based learning model. The Project-based Learning model is one model that uses problems as the first step in integrating knowledge to solve problems [2]. Project-based learning

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is a model that is prepared to make students as professional individuals in working in the future [3]. In the learning process, the project-based learning model teaches deep concepts so that student performance tends to be better.

Project-based learning has become a variable that is studied with several considerations. First, Project-based learning is a solution for online teaching and learning activities. During the COVID-19 pandemic, one of the models used was the project-based learning model [4]. A study showed that the use of the PJBL model affected students' creative thinking skills in online learning [5]. Following Nurhayati's 2021 research, it shows that during the pandemic the Project-Based Learning model with the blended learning method affects 21st-century abilities.

Second, Project-based learning has several advantages. There are 8 points of excellence of the Project-based learning model, one of which can improve problem-solving and critical thinking skills [6]. In addition, the hallmark of the project-based learning model is authentic problem solving [7]. Thus, in this study, the problem users are by the area where the study is located.

During a pandemic, learning can occur with various methods, one of which is hybrid learning. Hybrid learning is learning with several methods in achieving learning objectives [8]. In other words, hybrid learning is learning that utilizes technology to maximize the objectives of learning [9]. Therefore, the application of hybrid learning, combines learning with the internet and face-to-face [10].

Hybrid learning is a learning activity that prioritizes convenience for students. Hybrid learning is learning that can be done simultaneously at different times and places [11]. In addition, hybrid learning has a positive impact on learning abilities, motivation, and academic scores [12]. Thus, hybrid learning is also able to increase knowledge and involve students in practice [13].

The use of project-based learning during the pandemic to train creative thinking requires the help of learning media. Distance learning during the pandemic occurs separately starting from the learning process to communication between teachers and students so that facilities such as printed materials, electronic media, and other media are needed to make it easier for both of them to interact [14]. In addition, the application of learning models during the pandemic requires technological assistance such as Google Classroom, learning media, and Edmodo which have been proven to be effective in managing online learning.

One of the learnings that can be used is video. Chintia Meiliani's research showed an increase in creative thinking after using video media [15]. In addition, the presence of videos has a significantly different effect on learning mastery [16]. Video can present

moving images with additional sound so it is very effective for visualizing material to students to increase student motivation [17]. Thus, students have the motivation to learn so that they can cultivate creative thinking skills.

Based on the explanation above, research was conducted regarding the effect of the project-based learning model with hybrid learning assisted by video animation on creative thinking skills. Zakiah's research results show that the application of video-assisted PjBl can be used to explore students' mathematical creative thinking skills from the work that has been made [18]. In addition, the hybrid learning model is effective in providing knowledge and development of life skills [19]. The use of project-based learning models with hybrid learning also affects problem-solving abilities and design skills in artifact production [20].

Looking at the three studies above, there are differences in the research conducted with previous studies. The difference in research lies in the use of hybrid learning methods and animated video media. The use of the hybrid learning method in this study was limited to the implementation of online learning with the Whatsapp and Google Classroom applications, as well as face-to-face learning carried out at MAN 2 Kediri City. Another difference in this study is the use of the dependent variable in the form of creative thinking which is different from the variables in previous studies.

The ability to think creatively is very important. Creative thinking can make it easier for someone to solve a problem or event. Johnson said that creative thinking is a new understanding in generating new ideas [21]. Creativity is the integration of each individual in resolving [22]. Therefore, by having the ability to think creatively someone can provide new solutions to problems or events.

Learning geography itself has not used many new thinking frameworks in creating meaningful learning for students. Learning still prioritizes knowledge without directing students to develop their competencies [23]. Thus, learning tends to aim at memorizing material which results in students being bored when learning takes place. Based on the explanation above, it is necessary to conduct research related to "The Effect of Hybrid Project-based Learning using Animation Video towards Creative Thinking Competency in Senior High School".

2. Method

The research method used is a quasi-experimental research design in the form of pretest and posttest. The study was conducted in two classes, namely class XI IPS 4 as an experimental class with a Project-based learning model with hybrid learning using

animated videos and XI IPS 3 as a control class with a conventional learning model in the form of lectures. The instrument used to measure creative thinking skills is in the form of 4 essay questions with 2 to 3 sub-questions. The test of the instrument uses validity and reliability tests. The analysis of this study uses a gain score and t-test on IBM SPSS Statistics 22.

3. Results and Discussion

The parametric requirement test consisting of homogeneity test and normality test was carried out by researchers before testing the hypothesis. The results of the normality and homogeneity tests have been met and then continued with hypothesis testing. The results of the analysis of Geography’s creative thinking skills can be seen in Table 1.

TABLE 1: Creative Thinking Competency Gain Score.

Class	Mean		Gain Score
	Posttest	Pretest	
Experiment	86,3	74,5	11,8
Control	82,6	72,9	9,7

Based on Table 1, it can be seen that the average and gain score collected from the study. The average collected from the experimental class related to creative thinking skills at the posttest was 86,3 and the pretest was 74,5. The average control class scores creative thinking skills on the posttest of 82,6 and the pretest of 72,9. Seeing the average value obtained by the experimental class and control class, the gain score was 11,8 in the experimental class and 9,7 in the control class. Thus, it can be concluded that the gain score of the experimental class is higher than the control class.

In this study, the normality test was carried out using the Kolmogorov Smirnov test method assisted by the SPSS program with a level of 5%. The normality test results can be seen in Table 2.

TABLE 2: Normality Test.

The value of creative thinking		Sig	Conclusion
Experiment	Pretest	0,200	Normal
	Posttest	0,114	Normal
Control	Pretest	0,200	Normal
	Posttest	0,059	Normal
Gain Score	Experiment	0,200	Normal
	Control	0,129	Normal

Based on Table 2, the results of the normality test in the control class and the experimental class have various values. The values collected from the experimental, control, and gain scores showed a significance $> 0,05$. Thus, it can be interpreted that the data of the two classes is normally distributed.

This study also conducted a homogeneity test with Levene's test for equality. The homogeneity test results can be seen in Table 3.

TABLE 3: Homogeneity Test.

The value of creative thinking	Sig	Conclusion
Pretest	0,817	Homogen
Posttest	0,159	Homogen
Gain Score	0,152	Homogen

Based on Table 3, the results of the homogeneity test show that the homogeneity test is $> 0,05$. Thus, the pretest, posttest, and gain score data are homogeneous.

The last stage in data processing is hypothesis testing to determine whether or not the hypothesis is accepted in the study. Hypothesis testing using SPSS with the N-gain Score method. The results of hypothesis testing can be seen in Table 4.

TABLE 4: Hypothesis Test Results.

Class	Mean	Sig	Sig (2 tailed)
Experiment	45,6765	0,152	0,025
Control	35,0188		

Based on Table 4 shows that the significance value is 0,152 so that the main score is normally distributed. In addition, from the table above there is also a significance value (2-tailed) of 0,025. Seeing that the average gain score of the experimental class is higher than the control class and the value of sig (2-tailed) $< 0,05$, then H_0 is rejected. Thus, there is an Influence of the Hybrid Project-based learning using Animation Video toward the Creative Thinking Competency of Geography Subjects in Class XI Students of MAN 2 Kediri City. The success of the research is due to the implementation of the stages of project-based learning which will be described as follows.

The stages for implementing the hybrid project-based learning using animated videos in the experimental class can be seen in Table 5.

The first stage of project-based learning is determining the basic questions. At this stage, through the video, the teacher explains the state problem material. In addition, in the animated video, there is also a state problem in Kediri. Students are approved to listen to the video so that they can criticize the problems in the video. Giving basic

TABLE 5: Stages of the project-based learning.

No.	Stages	Indicator of Creative Thinking	Information
1.	<i>Start with the essential Question</i>	<i>Fluency</i>	The video shows population phenomena in Kediri. The video makes students think critically in finding answers from the teacher. Students can critically think about population phenomena in Kediri.
2.	<i>Design a Plan for the Project</i>	<i>Flexibility</i>	Students think critically in preparing product designs with the teacher. Students discuss and communicate product designs with the teacher.
3.	<i>Create a Schedule</i>	<i>Elaboration</i>	Student's critical thinking appears when investigating. Problem identification by seeking information from various sources. Students can communicate the reason for choosing a solution
4.	<i>Monitor the Students and the Progress of the Project</i>	<i>Originality</i>	Students can develop the ability to make decisions in the three product processes. Students can communicate related to deciding on the product made. Students can use media and sources to present solutions through posters.
5.	<i>Assess the Outcome</i>	<i>Elaboration</i>	Students can communicate with the posters. Students can answer questions during discussions.
6.	<i>Evaluate of Experience</i>	-	Students can conclude the problems that exist in Kediri after delivering posters in the class.

questions aims to determine students' knowledge and understanding of a phenomenon or problem.

Determination of basic questions related to creative thinking indicators in the form of fluency. Fluency is the ability to express ideas clearly [24]. Fluency in thinking begins when students are given a video to observe and can criticize the problems in the video. At this stage, students contribute responses by Whatsapp. Overall, students can criticize the phenomena that exist in Kediri through the disclosure of problems sent by WhatsApp. Students can relate phenoms in Kediri to the conditions around the students' residences.

The second stage of learning is to develop a project plan. At this stage, the students in the experimental class were divided into 3 problem topics. Serial numbers 1-12 on the problem of poverty, serial numbers 13-24 stunting problems, serial numbers 25-36 about distance learning problems in Kediri. In addition, at this stage students are given command by the teacher regarding the steps for working on a poster related to the problems that exist in the city of Kediri.

The project planning stage is related to creative thinking indicators about the flexibility of thinking. Flexibility in thinking makes students have the ability to solve problems in more than one way [24]. The achievement of the flexibility of thinking in this stage is because there are literacy activities according to the topic of the problem, whether it is through newspapers, news, papers, or articles on the internet.

Literature search focused on factors, impacts, solutions related to a problem. This activity aims so that students can provide solutions so that they can solve a problem well [25]. Literacy activities also make students able to discuss and communicate product designs to teachers. For example, there are some students designing posters, some are detailed but some are simple. Thus, indirectly at this stage project-based learning can increase students' knowledge and be able to solve problems.

The third stage of Project-based learning is to develop a schedule. At this stage, the teacher and students make an agreement on the allocation of time for making posters. Students together with the teacher estimate the right time to carry out the project, which is two to four days. At this stage, it encourages students to issue elaboration skills. Elaboration occurs when students can communicate the reasons for choosing a solution [24]. Solutions are collected from activities to identify problems by looking for various sources as was done in literacy activities in the second stage.

The fourth stage is the monitoring stage, at this stage the teacher monitors by looking at the student's discipline in collecting assignments. The monitoring stage is the most difficult stage for teachers to know the process of the activities taking place. This is because most of the learning is completed online so that teachers cannot directly observe student activities.

The monitoring stage relates to the original indicators (authenticity) in providing the solutions stated in the poster. The authenticity of thinking is thinking about a problem that is rarely owned by others, which comes from reading and listening to ideas to find a relatively original solution [24]. At this stage, the originality of students is seen in making solutions to problems in Kediri. Overall, the originality of students is obtained from literacy, but some students provide solutions that are adapted to observations around the student's residence.

At the monitoring stage, students make posters according to the design that was carried out in the second stage. At this stage, the teacher gives students the freedom to use the device to make posters. Thus, in monitoring students are required to use the media and resources they have to produce a poster.

The fifth stage is to test the results with the hope that students can communicate messages from the posters. Students communicate the posters that have been made

by presenting them in front of the class. At this stage, students are more active because they can convey their work well. One of the advantages of the project-based learning model is that it can make students active in communicating the solutions that have been collected [26]. In addition, at this stage students can answer questions and responses given by other students to the solutions presented so that students can communicate with peers [6].

The stage of testing the results is related to thinking creatively in the elaboration. Students' elaboration abilities are seen when communicating solutions through poster presentations, students can explain the reasons for taking the solution. Elaboration is the ability of students to make decisions with reasons that are by the desired goals [27]. At this stage, many students are active in conveying solutions and reasons so that learning is fun and interesting.

The sixth stage is the evaluation of the experience, this activity is carried out after presenting the poster. Teachers and students conclude about the material that has been studied. At this stage, students were asked to fill out a questionnaire consisting of 13 questions with yes or no options to find out student responses about online project-based learning. In addition, students are also allowed to provide criticism and suggestions during the learning process. The fifth and sixth stages of learning in the experimental class were carried out face-to-face in the canteen hall of MAN 2 Kediri City.

The role of animated videos in project-based learning is very important. Animated video is used as a substitute medium in conveying material. In face-to-face learning, the material can be delivered in the form of a hard file. However, in online learning, the delivery of material can be done through a video. The use of problem-based learning models with videos has a good effect on learning motivation [28] In pandemic conditions, videos are suitable for learning because they can attract students' attention [29]. Thus, the use of animated videos can make it easier for teachers to deliver study material.

The animated video in this study is used in the first and the second syntax. In the first syntax, animated video is used as a stimulus to start learning. The use of video in the first syntax can stimulate students in seeing problems in Kediri so that students can criticize Kediri's conditions. Students can criticize problems because the animated video explains various problems that exist in Kediri.

In the second syntax, animated videos are used for project planning. In the second syntax, there is a division of problem topics so that students need to understand more deeply than the problem topics in the video. Thus, the use of video in the second syntax

makes students able to find sources of information related to the topic of the problem so that students can plan products that need to be made well.

Animated video as a medium in conveying material makes it easier for students to learn. The use of animated videos makes it easier for students to remember the subject matter. In addition, with animated videos students get a stimulus related to a problem. The existence of literacy activities after giving animated videos makes students find various solutions to problems. This is what makes the value of students' creative thinking abilities change in a positive direction (increase) when compared to creative thinking skills before using the video or during the pretest.

Learning in the control class is also done online. At the second meeting, students in the control class were given readings related to the problems in Kediri. Students are given 5-10 minutes to read and understand the text given. The teacher also instructs students to submit responses to the reading through the WhatsApp group after they have finished reading. At this time, students are also allowed to respond to the results of other students' arguments after submitting responses to a problem.

At the second meeting, the teacher asked why the problems in the video could occur in Kediri. Overall students can convey the causes of the problems and student responses related to the problems that exist in Kediri. In addition, other students were also active in responding to opinions submitted by other friends on WhatsApp so that learning went well and smoothly.

Discussion activities related to the problems in Kediri started from the second meeting to the fourth meeting. At the second meeting, the students together with the teacher discussed the problems of distance learning. At the third meeting, the students together with the teacher discussed the problem of poverty in Kediri. At the fourth meeting, the students together with the teacher discussed the stunting problem in Kediri. The discussion activities carried out during 3 meetings resulted in the conclusion that population problems were closely related to one another. For example, the problem of poverty is the root of all problems that exist in the world of population.

At the fifth and sixth meetings, the teacher gave material on population dynamics through power points. The teacher provides material by sending a powerpoint accompanied by the teacher's voice when explaining the material. The material is given using Google Drive one day before the lesson. It aims to make it easier for students to access and understand the material. One day before the fifth meeting the teacher told the students to study 2 powerpoints first. At the fifth meeting, many students asked about material that had not been understood. At this meeting, an example was given by

mentioning one of the phenomena that existed in the community to make it easier for students to understand the population dynamics material.

The sixth meeting for the control class was carried out directly, namely, the teacher and students came to the madrasah. At this meeting, the teacher explained the population dynamics material in the third powerpoint. At this meeting, students ask questions related to material that has not been understood. In the learning activities, the students gave a few responses related to distance learning. Most of the students feel less comfortable when learning is done from home. Overall students said that school from home could not make learning concentration intact.

The research conducted is slightly different from previous research. The difference in the research lies in the learning media used and the time the research is carried out. This study uses animated videos as learning media during a pandemic. In addition, the research was carried out during the COVID-19 virus pandemic so that learning could not be face-to-face to the maximum.

This study uses online learning almost 75% with the help of Whatsapp and Google classroom (control class and experimental class) and 25% of learning is done face-to-face. Whatsapp is used to give instructions and conduct discussions when learning. The use of Google Classroom is intended to facilitate the collection of assignments. Overall online learning was carried out from the first meeting until the fifth meeting, while the sixth and seventh meetings were conducted face-to-face learning. Thus, learning takes place through electronic and face-to-face [30].

In this study, indicators that influence creative thinking are flexibility of thinking and originality of thinking. Both indicators have an average score of 25 with 25 students for flexibility and an average score of 25 with 29 students for the original. Both indicators have an average value of 25 due to literacy activities so that students can provide solutions to problem-solving. Students are said to be very creative if they can achieve three indicators or only meet flexibility and originality of thinking [31]. For example, students can provide one or more solutions to problems. In addition, some students can provide ideas that other students do not think of.

The implementation of all stages of learning in the control class and the experimental class is one of the factors for the success of the research. The results showed that the Project-based learning model with hybrid learning assisted by animated videos had a significant effect on creative thinking skills. The success of the study was seen from the results of the gain score and t-test in the experimental class and control class. The results of the experimental class gain score of 11,8 and the control class of 9,7. These

results indicate that the gain score of student's creative thinking skills using Project-based learning with hybrid learning assisted by video animation is higher than students who are taught using conventional methods.

The results of the t-test obtained in this study also showed the value of sig (2-tailed) was lower than 0,05, namely 0,025. Following research conducted by Gadis Hayuhana that the project-based learning model affects the ability to think creatively in online learning, it is shown from the average score in the offline class is 84,34 while in the online class it is 85,80 [5]. Thus, this study shows that H₀ is rejected and H₁ is accepted so that there is an effect of the Project-based learning model assisted by animation video on the creative thinking ability of students in class XI MAN 2 Kediri City.

The success of the research is also supported by the use of sub-materials on population issues. The material used in the research can trigger students to think creatively because they have basic competence 3.5 in the form of analyzing. Materials with basic competence analysis require students to be able to combine various information from 5M activities to those that are conveyed either through writing or orally. For example, students can explain the causes of problems and can provide solutions.

The material with basic competence analysis is used in research because it is by the characteristics of the project-based learning model. One of the characteristics of project-based learning is using basic competence which emphasizes the skills/knowledge aspects at the level of application, analysis, and evaluation. Thus, the sub-material on population issues can be used for project-based learning.

Materials that can be used in project-based learning are not limited to geography. There are several provisions regarding materials that can be used in project-based learning. First, the materials used have basic competencies that emphasize the aspects of knowledge/skills at the level of application, analysis, and evaluation. Second, material that emphasizes students producing products. The material used can be used as a project theme so that learning runs interestingly. In addition, the selected material must allow for solutions to the problems outlined in a product. Third, the selected material is related to real/life problems.

The success of the research that has been carried out also has some limitations. First, teachers cannot monitor learning optimally because learning activities occur online. Monitoring is carried out only to supervise the collection of tasks that have been agreed upon according to the deadline. Second, when a virtual meeting will be held, many students are constrained by data quotas so that learning is only carried out through the Whatsapp and Google Classroom groups as well as face-to-face for two meetings. Third,

the main component of the project-based learning model in the form of collaboration cannot be carried out properly because the research is conducted online.

Several things caused the collaboration component not to be carried out because the teacher could not meet directly with students so that the teacher had difficulties when monitoring the learning activities carried out by students in groups. Second, group assignments are not done because online learning makes it difficult for students to communicate with other students. Third, in group learning during the pandemic, only certain students actively contributed to the group. This condition occurs because not all students can divide their time well on the tasks given by the teacher so that in online learning some students are found who are slow in working on assignments, both individually and in groups.

4. Conclusions

The research that has been done shows that the Hybrid Project-Based Learning Model using Animation Video Influence Creative Thinking Ability. The success of the research can be seen from the results of the pretest and posttest showing the gain score for the experimental class is greater than the gain score for the control class, which is 11,8 for the experimental class and 9,7 for the control class. In addition, the results of the independent sample t-test also showed a result of 0,025. The results of this t-test show that it is less than 0,05. Thus, referring to the results of the gain score and independent sample t-test, it can be concluded that research using a hybrid project-based learning model assisted by video animation effects creative thinking skills.

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