



Increasing Students' Critical and Creative Thinking Skills using the Hybrid-PjBL Learning Model in Bima Local Wisdom-Based History Learning

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ABSTRACT

Keywords:

Critical Thinking;
 Creative Thinking;
 Hybrid-PjBL;
 History Learning;
 Local Content.

Local wisdom based learning is very necessary in developing 21st century skills (Critical Thinking, Creativity, Collaboration, and Communication). Its implementation in History learning greatly influences how students determine topics, explore information, collect and compile information results in the form of poster products which are then communicated to get responses and feedback for project improvement. The research aims to describe Increasing Students' Critical and Creative Thinking Skills Using the Hybrid-PjBL in Bima Local Wisdom-Based History Learning. This study uses an experimental research method, quasi-experimental design. because the researcher considered that the study ignored external variables that could affect the results of the study. Then the researcher wanted to identify the differences in the learning process using the Hybrid-PjBL model with the conventional model on students' critical and creative thinking skills, and the grouping of experimental and control groups that are not selected randomly. The sample selection technique uses purposive sampling. The research sample was 188 students in KAE High School, 94 people in the experimental class and 94 people in the control class. Data analysis in this study includes normality tests and non-parametric statistical tests using SPSS. The results of the hypothesis test, if a significant value is obtained (2-tailed) $\alpha = 0.05$, then H_0 will be rejected or H_a is accepted. conversely, if sig. (2-tailed) $> \alpha = 0.05$, then H_0 is accepted or H_a is rejected. The research instrument uses tests, and questionnaires that have been tested and validated by expert judgment. Quantitative data processing, through descriptive analysis (mean, median, mode, minimum and maximum values, percentage and frequency), normality test, and hypothesis test, finally Mann Whitney U Test and Wilkson Test. The results of the study showed that the experimental class was significantly higher than the control class. The Mean and Standard Deviation values in the pretest and posttest of the experimental class were 65.28 and 85.32 and the control class were 69.27 and 73.56. Specifically for the Experimental Class in the Mann-Whitney U Asymp value. Sig. (2-tailed) test results were 0.01 on the pre-test and post-test values of critical and creative thinking. 0.01 is smaller than 0.05, the alternative hypothesis is accepted. This means that the implementation of the Hybrid PjBL model in improving critical and creative thinking skills is very good.



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A. INTRODUCTION

Critical and creative thinking skills are high-level skills. These skills are developed through the process of exploration and expressing opinions and ideas (Khafah et al., 2023). Suharti & Faidin (2023b) the two skills above are competencies that must be mastered by the nation's children to compete in the 21st century. Critical and creative thinking skills are based on students who work hard in observing and asking questions in the problems faced as in the learning process. This then facilitates students at stages or activities that build reasoning power through their ability to identify and find answers to problems themselves. Because critical and creative thinking skills have indicators of finding information, analyzing, comparing and concluding and creating ideas in the form of papers or posters and others.

The results of the researcher's initial observations, students' critical and creative thinking skills tended to be less noticed by teachers; The learning methods used by teachers do not train students' abilities and skills; Teachers are monotonous in using demonstration and lecture methods, few students have the opportunity to construct critical and creative thinking skills; Local wisdom learning resources do not support history learning materials to train critical and creative thinking skills; The low critical thinking skills of students in analyzing historical problems have an impact on students' creative thinking skills to produce historical writings. The results of previous studies describe the lack of critical and creative thinking resulting in low students' abilities in exploring information and being critical of problems and creating new ideas (Faidin & Suharti, 2023). Therefore, education should not be limited to teaching in class, education must be open up space, wherever and whenever students are (Faidin et al., 2019).

Based on the problems in previous studies and the results of the researcher's initial observations, this study is important to be conducted to help students improve their critical and creative thinking skills. Students' critical and creative thinking skills increase in each cycle using PjBL (Salam & Wahyuni, 2021). Both of these abilities are very important because individuals analyze critically and transfer knowledge creatively (Nasution et al., 2023). To improve critical and creative thinking skills, effective learning resources are needed (Suharti et al., 2022). Good learning resources are constructed from local wisdom that can build students' critical, collaborative, communicative, and creative thinking skills. In this case, it is very necessary for teachers to advance their perspectives, thinking, communicating, collaborating, and being more creative and innovative (Faidin et al., 2022). The Hybrid-PjBL learning process is an innovative learning model, in accordance with the demands of the 21st century (Rahardjanto et al., 2019). Hidayat et al. (2022) emphasizes that if the Hybrid system learning process is carried out with the right learning steps, it can optimize students' critical and creative thinking skills and enter high-level abilities. While PjBL emphasizes active participation, problem solving, attitudes and abilities related to cooperation, critical thinking and creative thinking (Purwaningsih et al., 2020). This process is based on the theory of progressivism that increasing critical and creative thinking in history learning builds learning awareness to be more critical, creative and innovative (Faidin & Suharti, 2022). PjBL is very suitable for this study because this model can improve high-level abilities, problem solving, collaboration, communication, and leadership as a strategy for developing 21st century abilities (Tsybulsky & Rozanov, 2021).

PjBL is a learning management plan that focuses on developing creativity, critical thinking, communication, and collaboration (Somphol et al., 2022). This model is full of active student learning experiences both in and outside the classroom. Using PjBL, students start to think about what is done in the model (Alkilani & Khalaf, 2023). In History learning, this model has collaborative activities in thinking and solving problems, being honest in working, completing

assignments on time according to the specified schedule, being creative in creating their own writing in the form of posters. Lim et al. (2023) shows that PjBL has succeeded in helping students develop their abilities in learning history. The PjBL model allows students to find and carry out the activity process themselves with the teacher as a facilitator (Suharti & Faidin, 2023a). The teacher has a role in helping and guiding students on projects carried out by students that are not in accordance with the PjBL activity flow. So that the projects produced by students then reach the product results.

Empirically, learning will be more meaningful if supported by local wisdom. The local wisdom used is Rimpu. Rimpu is the local wisdom of the Bima community that was born after Islam entered and developed in Bima in the 17th century (Nurjannah et al., 2023). Evidence of the influence of Islamic law on the Bima community is the use of Rimpu on married and unmarried women (Hidayatullah & Ahlan, 2023). This Rimpu has a very strong influence on the religious life of the Bima people, the Bima people during the Islamic Kingdom highly prioritized covering their genitals. Wahyudi & Kusdarini (2020) explains that Mbojo woven cloth is part of the development of Islam, used for everyday clothing that covers the genitals for both men and women. Not only in religious elements, Rimpu clothing is widely favored by the Bima community because Rimpu uses Tembe Nggoli cloth (Nggoli sarong) which has various patterns, and the material is cool. Used for daily activities at home and presented at Bima festival events. Next, Hanta Ua Pua is a tradition to commemorate the birthday of the Prophet Muhammad SAW (J Supriadin, 2023). Susanti & Ramli (2023) this event is an Islamic cultural heritage, first held during the reign of Sultan Abdul Kahir Sirajuddin. This tradition has a close relationship with the preaching of Islamic teachings because it is directly related to the history of the entry and development of Islam (Nurnazmi & Maksum, 2023). Finally, Ziki peta Kapanca. Peta Kapanca is present to introduce and strengthen Islam in the midst of the Bima community (Aminullah & Nasaruddin, 2017). The stages of the Peta Kapanca ceremony contain Islamic nuances, because the process is accompanied by ziki (Ramlah et al., 2023). The Ziki Kapanca procession provides hope and prayer that in the future the bride and groom will be given ease and smoothness in sailing the ship of household (Yono et al., 2022). Peta Kapanca is a vehicle to introduce and strengthen Islamic teachings in the Bima community (Amrin et al., 2023). Local wisdom is very important to understand and use as study material in all activities related to the world of education, especially in the world of history (Faidin, 2017). Some of these local wisdoms greatly support the improvement of the ability 21st century students use the Hybrid-PjBL model in History learning. Here are some pictures of previous studies as a comparison with the current study, as shown in Figure 1.

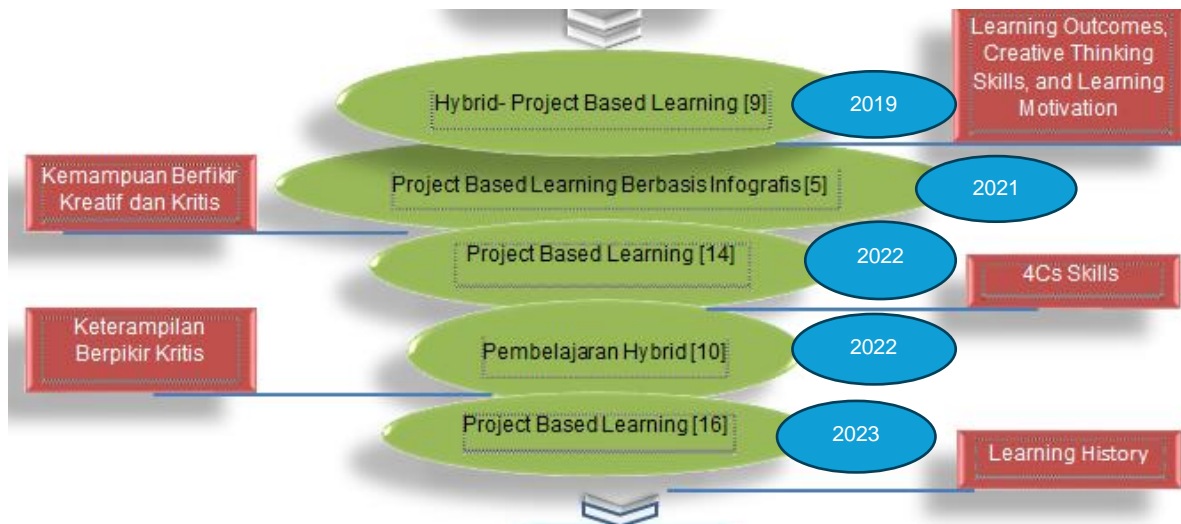


Figure 1. Previous Research

The five previous studies above are Rahardjanto et al (2019). Second, Salam & Wahyuni (2021). Third, Somphol et al (2022). Fourth, Hidayat et al (2022). Fifth, Lim et al (2023). This study has more value compared to the five previous studies, the problem-solving approach taken by the researcher is to use scientific stages with collaborative learning strategies. Such activities refer to the Dale Cone which involves all reading activities to do critical and creative thinking skills themselves as a process of Hybrid-PjBL. This problem solving can construct students' high-level thinking skills through learning with two models at once.

B. METHODS

This study used a quasi-experimental, Nonequivalent Control Group Design because the researcher considered that the study ignored external variables that could affect the results of the study. In this design, there is a control group so that the group's scores will be compared with the scores of the experimental group. The researcher compared the pretest and posttest results of the two experimental and control groups that were not selected randomly to identify the differences in the learning process using the Hybrid-PjBL model with the conventional model on students' critical and creative thinking skills.

The sample selection technique uses purposive sampling. This method uses criteria that have been selected by the researcher in selecting the sample. The sample selection criteria are divided into inclusion and exclusion criteria. Determination of the sample by first conducting a sample size survey, such as the number of students in the school that will be used in the study. Then the researcher, survey officers and field assistants conducted observations, interviews with history teachers regarding the uniformity of students' cognitive data in history learning. So that the research sample was determined for the experimental class of 94 and the control class of 94 students. The sample in this study was high school students in grade XI who were low in critical and creative thinking skills. With the inclusion criteria, the research sample was high school students who were willing to be respondents, high school students in grade XI had almost the same average report card scores/ Students had uniform values. While the exclusive sample criteria were students who lacked awareness and enthusiasm in improving their critical and creative thinking skills. The sample in this study was class XI students who were low in critical and creative thinking skills according to the inclusion and exclusion criteria.

The study was conducted 8 times for face-to-face meetings, and 4 times for online meetings. The experimental class using the Hybrid-PjBL learning model will carry out project activities with local wisdom-based historical material while the control class will not. In the experimental and control classes, a pretest was carried out, given different treatments, the experimental group used the Hybrid-PjBL model while the control group used the conventional model. Finally, both groups did a posttest. Furthermore, comparing the results of the pretest and posttest for the two classes, this was done to find out whether there was an increase in students' critical and creative thinking skills using the Hybrid-PjBL learning model in the experimental class?

The research instrument uses tests, and non-tests, namely questionnaires. Data collection through tests using pretests and posttests, then validated questionnaire sheets. The reliability and validity tests of the instruments are carried out empirically with expert judgment. Empirical tests are carried out on selected samples and assessments are carried out by experts in the field of critical and creative thinking skills and the Hybrid-PjBL learning model. After the validation of the instrument, an analysis is carried out using the Rasch Model. The instruments used relate to critical and creative thinking, as well as the Hybrid-PjBL Learning Model in History Learning. The test instrument consists of 10 essay questions for each variable. The contents of the instrument are interpretation, building ideas or products, curiosity, thoroughness, cooperation. For critical and creative thinking questions, the score range is 1-3 and the attitude is using a scale of 1-4. Then to find challenges in learning for students and teachers using a questionnaire with open questions. Data analysis in this study includes normality tests and non-parametric statistical tests using SPSS. The results of the hypothesis test, if a significant value is obtained (2-tailed) $< \alpha = 0.05$, then H_0 will be rejected or H_a is accepted. conversely, if sig. (2-tailed) $> \alpha = 0.05$, then H_0 is accepted or H_a is rejected.

C. RESULT AND DISCUSSIONS

1. Description of Increasing Student Critical and Creative Thinking Skills

The Results of the Descriptive Analysis, the Students' Critical and Creative Thinking of experiment group showed more significant increase than control group. Hybrid-PjBL model able to change and increase critical and creative thinking student. Increasing both critical and creative thinking make student more flexible in facing learning, as shown in Table 1.

Table 1. Descriptive statistic

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest_Experiment	94	53	83	65.28	8.400
Pretest_Control	94	53	86	69.27	9.397
Posttest_Experiment	94	63	96	85.32	8.787
Posttest_Control	94	60	90	73.56	7.901

From the Table 1, the findings show that the Students' Critical and Creative Thinking have increased. It can be seen that average value of pretest and posttest in experiment group is changed from 65.28 to 85.32. While for the minimum of 53 increased to 63 and maximum value of 83 to 96. On the other hand, the score of pretest and posttest in control group, it can be seen that there is average value of 69.27 increased to 73.56 then minimum of 53 to 60 and maximum of 86 to 90. Based on the different score of pretest and posttest experiment and control group, the score of posttest experiment group is categorized high such as average value of 85.32. And the score

shown that the average value is effective in learning context. The detail information about the comparison mean score of pretest and posttest in each of both critical and creative thinking as presented in the following Table 2.

Table 2. Comparison of critical and creative thinking skills values

Component	Experiment Class		Control Class	
	Means Score	Means Score	Means Score	Means Score
	Pretest	Posttest	Pretest	Posttest
Critical	65.28	85.56	69.27	73.80
Creative	65.28	85.32	69.27	73.56

From the Table 2 findings show that the student posttest score of experiment group have more significant than pretest as like control group. The mean score in critical thinking of pretest before using Hybrid-PjBL and posttest after using Hybrid-PjBL of 65.28 to 85.56. While Creative thinking before using Hybrid-PjBL of 65.28, after using Hybrid-PjBL increased to 85.32. On the contrary, mean score of pretest and posttest control group using conventional model, in critical thinking of 69,27 to 73,80, then creative thinking of 69,27 to 73.56. Result shows that after student learn with Hybrid-PjBL, critical thinking and creative thinking more increased. There is significant difference between before and after giving treatment by using Hybrid-PjBL based Local wisdom.

2. Implementation of the Hybrid-PjBL in Improving Critical and Creative Thinking

Regarding the results of the questionnaire, student critical thinking and creative thinking were supported by Hybrid-PjBL. The majority of student's answer from learning experience mostly say *Agree*. This can be seen in the following Figure 3.

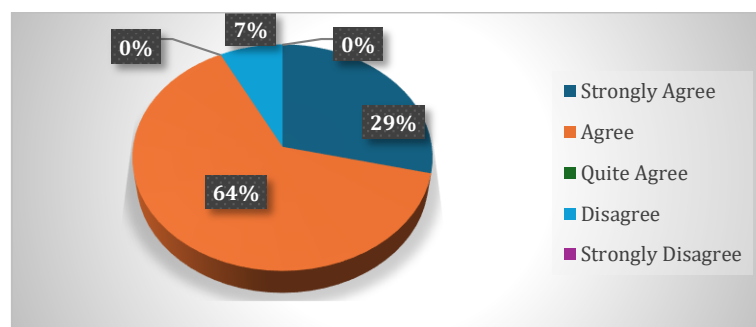


Figure 2. Student's view on learning with Hybrid-PjBL

The Figure 2 above shows that 64% of students answered that they agreed with learning using the Hybrid-PjBL model in increasing students' critical and creative thinking skills. As many as 29% answered that they agreed and 7% answered that they disagreed. This finding indicates that learning history using Hybrid-PjBL really accepted from student to support learning and increase critical thinking and creativity such as identification, inference, evaluate, then create ideas and product etc.

3. Testing Requirement Analysis

Based on the normality testing of the data in the experimental class and the control class, the Asymp. Sig value is obtained (2-tailed) 0.01, the data are not normally distributed because p value is smaller than 0.05. So, this research used non parametric test, the Mann-Whitney U-Test. Normality test as shown in Table 3.

Table 3. Results of Critical Thinking Normality Test using shapiro-Wilk.

		Shapiro-Wilk		
NGAIN	Group	Statistic	Df	Sig.
	Experiment Class	.957	94	.004
	Control Class	.504	94	<.001
a. Lilliefors Significance Correction				

Based on the Table 3. For experimental group, Normality test of Shapiro-Wilk, The statistic score of .957, The probability score critical thinking of .004 is smaller than the probability of .005. It can be concluded that the data was not normally distributed. Furthermore, the results of normality test Creative Thinking are presented in following Table 4.

Table 4. Results of the Creative Thinking Normality Test using shapiro-Wilk.

		Shapiro-Wilk		
NGAIN	Group	Statistic	Df	Sig.
	Experiment Class	.953	94	.002
	Control Class	.477	94	<.001
a. Lilliefors Significance Correction				

The Table 4 shows that the data is not normal, In Shapiro-wilk, the statistic score of .953. The Sig. value of the experimental class of .002 is smaller than the probability of .005. The data used in this study was not normally distributed. Because based on the conclusion drawing rule that if Sig is greater than 0.05, the data is said to be normally distributed, and if Sig is smaller than 0.05 then the data is not normally distributed. So, from the results of the normality test that has been presented, it is stated that the research data is not normally distributed, so for the statistical test using non-parametric statistics Mann Whitney formula through SPSS. This is done because the research data is ordinal because the assessment results for each student show the results of differences between values with different distances.

4. Hypothesis Test Results

Hypotheses used to see that there was significance differences critical thinking and creative thinking between before and after learning using treatment Hybrid-PjBL. At this stage, a hypothesis test is conducted using the Mann Whitney Test. The test was presented in the following Table 5.

Table 5. Statistical test results of critical and creative thinking skills

Component	Test Result	Pretest dan Postest
Critical	Mann-Whitney U	199.000
	Wilcoxon W	4664.000
	Asymp. Sig. (2-tailed)	<,001
Creative	Mann-Whitney U	163.000
	Wilcoxon W	4628.000
	Asymp. Sig. (2-tailed)	<,001

Based on the table 6. In the test of Mann-Whitney U. It can be seen that the value of pretest and posttest critical thinking of 199.000 which have Asymp value. Sig. (2-tailed) 0.001 is smaller than 0.005. As same as with creative thinking skill, the value of pretest and posttest of 163.000, having Asymp value. Sig. (2-tailed) 0.001 is smaller than 0.005. This result shows that there was increasing student critical and creative thinking skills with the Hybrid-PjBL learning model. It means that learning by using Hybrid-PjBL model with local-wisom better than conventional model.

The results of study show that the student critical thinking and creative thinking increase based on indicators. Such as identification, inference and evaluate. Eventhough aspect of evaluate still be able to increase again to get higher score. Here, the teacher must be dominated and studied how to implement aspect evaluate for student because few students less in that part. This relevant with theory of Salam & Wahyuni (2021) to increase student critical thinking and creativity, need teacher's consistent to increase competence and find new idea and creative to find model in learning. Average, the creative thinking, student can create idea or product based on student's thinking. This result relate with the previous studies, Somphol et al (2022) critical thinking skill focuses on the students' ability to classify and solve problems and the creativity skill is focused on fluent and original thinking. Rahardjanto et al (2019) the student encouraged to use creativity in solving problems, asked to use student knowledge and skill to produce unique and creative product. In critical thinking and creative thinking, the score of student it's not more different each other. It can be looked that creative thinking can be increased from critical thinking.

The student must be critical to be creative. This achievement has relevant with previous study of Hidayat et al (2022) critical thinking skills are not the main variables studied, but rather as a measure of the success of product development. The result of pretest and posttest of experiment and control group have different achievements, it can be said that student in different both critical and creative thinking skill cause of different treatments. As like theory of Lim et al (2023) The traditional approach of teaching and learning only required students to 'remember' and to 'understand' the information that were relayed to them before they were asked to reproduce these answers in the examinations. While approach that developed student critical thinking and creative thinking can be increased aspect of analyse and evaluate any information or questions.

Based on data analysis from Hybrid-PjBL learning models, the results of that are effective in increasing critical and creative thinking. It has consistently with previous study, Alkilani & Khalaf (2023) that project based learning are: supporting, raising students' enthusiasm, and encouraging them to work in groups, following up on their learning patiently, planning projects with considering authentic products that will be accomplished by students and ensuring the availability of proper resource, integrating the twenty-first century skills such as research skills, critical, reflective, and creative thinking, collaboration. However, after the treatment, a sense of togetherness in learning began to grow, actively asking questions, identifying, interpreting and conveying ideas, discussing, searching for and finding information to answer basic questions and

carrying out projects based on themes that have been determined jointly by teachers and students. Here all students work with individual and group reports. So that later teachers and researchers conduct monitoring and evaluation towards the creation of products or student work. This means that during the learning based on this research, there is a visible increase. The project-based learning stages with a hybrid pattern can improve students' critical and creative thinking skills through the stages of determining basic questions; (2) creating project designs; (3) preparing schedules; (4) monitoring project progress; (5) evaluating results; (6) evaluating experiences. In critical and creative thinking skills based on the research result, students can express opinions through basic questions, interpret meaning in the project implementation process, can identify and analyze information from project. While creative thinking is that students can be created the data collected into poster as a product of learning process. In his research, Doyan et al (2024) suggested that the increasing trend of research using the PjBL model can improve problem-solving skills in 21st century education. The researcher added that problem solving can be done on the basis of high-level critical thinking skills.

Eventhought, since learning process based Hybrid-PjBL, the teacher have difficult to evaluate and control student working, because in a group there are definitely those who don't work or are passive so that students are likely to be weak in their critical thinking skills. The student unresponsibility to the assignment because the student feel that another student in group had accomplished working in learning. Furthermore, the weakness of learning is the teacher didn't know more how far students have critical and creative without teacher control in outing class except in the class. Therefore, the teacher and student must have mutual work and have emotional approach to construct learning process very well in order that teacher easy to asses student achievement. Then, few students difficult to access learning via G-Meet because of they don't have handphone. These are make student less in active, because learning using hybrid-PjBL referes to student's actively and participate in every stages of learning model.

D. CONCLUSION AND SUGGESTION

The purpose of this study is to describe Increasing Students' Critical and Creative Thinking Skills Using the Hybrid-PjBL in Bima Local Wisdom-Based History Learning. By conducting test both experiment group and control group, it can be concluded that Increasing Students' Critical and Creative Thinking Skills Using the Hybrid-PjBL Learning Model in Bima Local Wisdom-Based History Learning is better than conventional learning. In learning using the Hybrid-PjBL model, students are asked to work together, collaborate, think critically and creatively in completing learning projects. Both in face-to-face and online learning through G-Meet. Using the Hybrid-PjBL model on local wisdom-based History material, students identify problems based on topics about local wisdom based history learning that have been determined jointly by the teacher and students in learning project, then the student collaborate to design project planning like schedule and time allocate, after that the students are required to be able to make inference the results of the project using argument based on the information that they have gotten through the analysis, and evaluation. The conclusion can be created and expressed ideas through posters and conveying them through presentations. In the evaluation process is carried out by the teacher to the students, and students also evaluate the results of other friends' final products to improve future project assignments. In G-Meet application, the learning project just monitoring and evaluation process, it is carried out by the teacher so that the project results are in accordance with the expected goals. While other processes are carried out face-to-face. The positive impact of this implementation is the students can work hard in completing assignments according to the predetermined schedule,

students can improve their understanding and ability to explore various information related to the learning theme, students can convey ideas without fear of being wrong and others. Students' critical and creative thinking skills using the Hybrid-PjBL learning model can be increased as indicated by 001 is smaller than 0.05, meaning H_a is accepted. Equipped with the results of the student questionnaire that 64% of students agree with the implementation of learning carried out by the researcher.

Although the study results showed significant success, Hybrid-Project Based Learning also presents a major challenge in research in terms of the number of research samples which is quite large, making it difficult for teachers to focus on improving students' critical and creative thinking skills, and teachers have difficulty assessing the improvement of students' critical and creative thinking skills, it is possible that in the group there are students uninvolved in completing the project assignment because students assume that it has been done by the group, this then allows some students to not fully show that they really have critical and creative thinking skills through the use of the Hybrid-PjBL model. The cause of passive students is because students have various ways of receiving learning such as students who have weaknesses in experimentation and information gathering. another challenge, Project Based Learning requires a lot of time that must be provided to solve complex problems faced by students in the field. The last, Many students have difficulty doing online-based learning because they need sophisticated cellphones and data package costs.

To overcome these limitation of the study, the teachers have to work hard to find strategies / model to overcome the student critical and creative thinking everytimes by looking for a more innovative learning strategy or model that emphasizes high-level learning activities integrated with technology based on student achievement. Then the teachers have to spend extra time preparing learning devices that have a tendency towards student learning styles so that those who are passive can be more active. Then, the next researcher must be able to reduce the number of research sampel. By considering students who have mobile phones and the ability to use technology, who have experience in accessing technology. Because this research requires good human resources in implementing Hybrid learning.

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