Research Paper

Science Learning with The Project Based Learning (PjBL) Model Assisted by Canva on the Learning Independence of Fifth Grade Students

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ABSTRACT

The use of the right model and media in learning is certainly needed in the learning process, in line with the results of observations and interviews conducted with class teachers, it shows that learning science at SD Alang-alang Lebar Subdistrict, Palembang City has not used the right learning model and learning media so that students become less active because they only listen and students do not participate in learning so that they make children not independent, for this reason it is necessary to apply the PjBL model assisted by the canva application to increase student learning independence. The formulation of the problem in this study is how the effectiveness of the PjBL model assisted by the canva application on student learning independence. This study aims to analyze the effectiveness of learning with the PjBL model assisted by the canva application on the learning independence of fifth grade students of SD Alang-alang Lebar Subdistrict, Palembang City. The method used is mixed method (mix method) sequential explanatory design. Data analysis used in quantitative research is Normality test, Homogeneity test, N-gain test, and t-test. Science learning with the PjBL learning model assisted by the canva application based on the results of independent data analysis shows that the significance result of $0.00 < 0.05$ proves that there is a difference in the average value in the experimental and control classes. The average value in the experimental class was 73.75 while in the control class it was 59.05. Based on the results of the research that has been carried out, it can

be concluded that learning science with the PjBL model is effective in optimizing the learning independence of fifth grade students. Suggestions for research are to be able to streamline time because PjBL takes a little longer in the learning process.

Keywords: PjBL; Canva; Independence

INTRODUCTION
Education for the activities of the nation and state has a very crucial role in because education is a place to raise and expand the level of human resources (Trimurti et al, 2017). In line with the development of education that is increasingly advanced, the shade of education is required to be able to adapt to the development of science (Arbarini & Ekosiswoyo, 2019). Referring to Law Number 20 Year 2003 on Sikdiknas Pasal 3, regarding the objectives of national education. Various kinds of efforts are made towards these national education goals, with curriculum development. Permendikbud Number 68, 2013 curriculum aims to prepare Indonesian people to have the ability to live to be themselves and people who have faith, productive work, creative spirit, innovative spirit and are also affective and can participate in the habit of self-society, nation spirit, state spirit and world life. In the implementation of the 2013 curriculum, one of them is integrated learning of Natural Sciences (IPA). Information will be more meaningful than given information if

students independently carry out the process of discovery or problem solving. Science is part of a subject that can improve the character of independence to students by using a scientific approach (Nadliyanti et al., 2016).

Independence when learning is a learning life that in its continuity is more driven by one's own desires, one's own choices and responsibility to oneself in the learning process (Astalini et al, 2019). Independence in student learning is used so that they have a sense of responsibility in managing and managing themselves. However, in reality, this basic human skill is disrupted by the education system that is implemented in the field which is characterized by "teacher center". The process of learning by assignment and consequently, learning independence which is a natural ability of students is reduced. This learning independence can be re-grown by applying the right learning. In such cases, teachers must certainly try to carry out a learning process that varies in approaches, types of methods, can also be an innovative learning model in order to hopefully achieve success in learning objectives (Noor et al, 2020). The application of appropriate ways and ways of learning can help children become better selves, independent spirits, always enthusiastic, and of course high tolerance. Independence certainly requires responsibility, independent selves are those who are responsible, take the initiative, have courage, and are able to accept the consequences and can be a lesson for themselves (Wulandari & Wahyuningsih, 2018). In an effort to respond to all the challenges of independent learning, learning with the Project Based Learning (PjBL) model is considered as learning that can develop student learning independence. With the research that has been done related to the problems previously described, the researcher will apply PjBL assisted by Canva application in increasing students' independence in learning science in elementary schools. The purpose of this study is to determine the effectiveness of

PjBL on the learning independence of fifth grade elementary school students.

LITERATURE REVIEW

Sani (2014: 172) said PjBL can be defined as learning with long-term activities that involve students in designing, making and displaying products to solve real-world problems. Thus the PjBL learning model can be used as a learning model to develop students' ability to plan, communicate, solve problems and make the right decisions from the problems faced. According to Kosasih (2014: 96) PjBL is a learning model that uses projects or activities as its goal. Learning is focused on problem solving which is the main goal of the learning process so that it can provide more meaningful learning because learning not only understands what is learned but makes students know what the benefits of learning are for the surrounding environment (Saad & Zainudin, 2022). The learning steps according to Permendikbud Number 23 (1) Determining fundamental questions; (2) Designing project planning; (3) Developing a schedule; (4) Monitoring learners and project progress; (5) Testing results; (6) Evaluating the experience.

The explanation of these stages is first, learning in PjBL starts with an essential question, which is a question that can assign learners to do an activity. The topic of the assignment corresponds to the real world that is relevant to learners and begins with an in-depth investigation. Second, learners make a plan that is done collaboratively between teachers and learners. Thus, learners are expected to feel "ownership" of the project (Hira & Anderson, 2021). The planning contains the rules of the game, the selection of activities that can support in answering the essential question, by integrating various possible subjects, and knowing the tools and materials that can be accessed to help complete the project. Third, teachers and learners collaboratively develop a schedule of activities to complete the project. Activities at this stage include: 1) Creating a timeline (time allocation) to

complete the project, 2) Making a deadline for completing the project, 3) Getting learners to plan new ways, 4) Guiding learners when they make ways that are not related to the project, and 5) Asking learners to make explanations (reasons) about their choices. Fourth, the teacher is responsible for monitoring learners' activities while completing the project. Monitoring is done by facilitating learners in every process. In other words, the teacher acts as a mentor for learners' activities. To facilitate the monitoring process, a rubric is created that can record all important activities. Fifth, assessment is carried out to assist teachers in measuring the achievement of standards, play a role in evaluating the progress of each learner, provide feedback on the level of understanding that has been achieved by learners, assist teachers in developing the next learning strategy Sixth, at the end of learning, teachers and learners reflect on the activities and results of projects that have been carried out. The reflection process is carried out both individually and in groups.

According to the Minister of Education and Culture, this PjBL learning model is very effective for students by forming small learning groups in working on projects, experiments, and innovations. Martiani (Kusadi et al., 2020) argues that project-based learning can improve creative thinking skills through involving students in real or simulated experiences and becoming autonomous and independent learners. Martiani (Lestari, 2016) also said that the PjBL model is a learning model that provides opportunities for educators to manage classroom learning by involving project work. Project work is a form of work that contains complex tasks based on questions and problems that are very challenging and lead students to design, solve problems, make decisions, carry out investigative activities, and provide opportunities for students to work independently. The purpose of PjBL learning according to Martiani (Sudianto, 2018) is to make students become independent in learning, have problem

solving skills, and students can deal with problems that may occur in everyday life.

MATERIALS & METHODS

This research is using mixed methods with a sequential explanatory design that combines quantitative and qualitative research methods sequentially, where the first stage uses quantitative methods and the second stage uses qualitative (Sugiyono, 2013). The application of sequential explanatory design starts from quantitative data collection and analysis followed by qualitative data collection and analysis that builds on the initial results of quantitative data (Creswell, 2013). Priority for methods is given to quantitative data. The use of quantitative methods plays a role in obtaining quantitative data that is measurable and descriptive, while qualitative methods play a role in proving, deepening, and expanding quantitative data (Kumatongo & Muzata, 2021).

The quantitative research design used is a quasi-experiment. The qualitative research design used is descriptive qualitative which intends to understand the attitude of independence that has been given treatment with the PjBL model assisted by the canva application. In this design, the experimental group and control group are not randomly selected. In this design, two experimental groups and a control group are compared. Theoretical and empirical approaches in research are needed, the approach taken in this study uses quantitative research. This study involved two classes, namely experimental classes and control classes that were given different treatments. In class V was given treatment, namely teaching science subjects with the PjBL model assisted by the canva application and in the control class was given treatment, namely teaching science subjects with a cooperative model. To find out the student learning outcomes obtained from the application of the two treatments, students were given a test while to find out the attitude of independence a questionnaire was given and

also observation of the learning process of students.

STATISTICAL ANALYSIS

The following are the results of pretest and posttest questionnaire data on student learning independence based on the assessment score of each indicator.

Table 1 Results of Learning Independence Questionnaire Data

No	Indicator	Percentage			
		Pretest	Description	*Posttest*	Description
1	Responsible	56	Medium	82,25	High
2	Have the Initiative	39,8	Low	59,8	Medium
3	Discipline	54,57	Medium	75,29	High
4	Confident	58,75	Medium	80	High
Average		**52**	**Medium**	**73,75**	**High**

Based on Table 1, the results of the questionnaire assessment of student independence indicators in the control class increased the average from the pretest and posttest from 52.2 with criteria based on the Likert scale having moderate criteria to 59.05 with high criteria. Before the hypothesis test is carried out, the prerequisite test is carried out first, namely the normality test and the homogeneity test. Furthermore, hypothesis testing was carried out to determine the significant average difference between the two classes with the N-Gain test and the T test.

1. Normality Test

Normality test is conducted to determine whether the data samples taken are normally distributed or not. The data obtained from the normality test of the experimental class and control class for the questionnaire assessment of learning independence can be seen in Table 2.

Table 2 Normality Test Result

Class	Shapiro-Wilk		
	Student Count	Sig.	Description
Experiment Pretes*t*	20	0,938	Normal
Experiment Posttest	20	0,237	Normal
Control Pretest	20	0,284	Normal
Control Posttest	20	0,072	Normal

Based on Table 2, the significance value for the experimental class pretest is 0.938 and the control class is 0.284 and the experimental class posttest is 0.237 and the control class is 0.72. This significance value is greater than 0.05 so that H0 according to the decision-making criteria in the Shapiro-Wilk test is accepted and means that the pretest and posttest data are normally distributed.

2. Homogeneity Test

The variance homogeneity test is carried out to determine whether the sample data has the same variance or not. The homogeneity data of the two classes can be seen in Table 3.

Table 3 Homogenity Test Result

		Levene Statistic	Sig.
Independence Questionnaire Result	Based on Mean	1.603	0,196
	Based on Median	.898	0,446
	Based on Median and with adjusted df	.898	0,447
	Based on trimmed mean	1.546	0,210

Based on Table 3, the results of homogeneity can be seen in Based on Mean on the data of both classes have a significance value of 0.196. The significance value shows greater than the significance level ≥ 0.05. So that H0 based on the criteria shows that the data is homogeneous.

3. N-Gain Test

The N-gain test was conducted to determine the difference between pretest and posttest scores in experimental and control classes.

The data obtained by the N-gain of the experimental class and control class for the questionnaire assessment of learning independence can be seen in Table 4.

Table 4 N-Gain Test Result

Class	Pretest	Posttest	N-Gain Score	Critteria
Experiment	52	73,75	0,47	Medium
Control	52,2	59,05	0,15	Low

The data results in Table 4 can be seen from the comparison of the average N-gain in the control class and the experimental class. The results of the experimental class N-gain average value of 0.47 with moderate criteria, while the control class amounted to 0.15 with low criteria. This shows that the average N-gain score of student learning outcomes for the experimental class is higher than the average N-gain score of the control class.

4. T-test

The t-test aims to determine the difference between the increase in learning independence of experimental and control class students. The test hypothesis used is as follows.

H0: There is no significant average difference in learning the Project Based Learning (PjBL) model assisted by the canva application on the independence of fifth grade elementary school students in Alang-alang Lebar Subdistrict, Palembang City.

H1: There is a significant average difference in learning the Project Based Learning (PjBL) model assisted by the canva application on the attitude of independence of grade V elementary school students in Alang-alang Lebar Subdistrict, Palembang City.

The decision-making criteria are as follows:
If the significance (.Sig) > 0.05 then Ho is accepted
If the significance (.Sig) ≤ 0.05 then Ho is rejected

The results of the test of differences in the increase in students' learning independence attitude scores can be seen in Table 5.

Table 5 T-test Result

Independent Samples Test		Levene's test for Equality of Varians		t-test for Equality of Means		
		F	Sig.	T	Df	Sig (2-tailed)
N-Gain	Equal variances assumed	7.276	.010	8.182	38	.000
	Equal variances not assumed			8.182	29.845	.000

Based on table 5 the significance value on Levenes's Test for Equality of Variances is 0.10 when viewed in the criteria for hypothesis decision making in the t test. H0 is rejected. This shows that there is a difference in the average score of students' independence assessment between the experimental and control classes.

RESULT

Based on the results of the study, it was found that the results of the N-Gain test to determine the difference between the pretest and posttest scores in the experimental and control classes found that the results of the experimental class N-gain average value of 0.47 showed moderate criteria, while in the control class the N-gain average value was 0.15 with low criteria. This shows that the average N-gain score of student learning independence for the experimental class is higher than the average N-gain score of the control class, meaning that there is a higher score increase in the experimental class which is given treatment with the PjBL model assisted by Canva. In addition, based on the T test on the N-gain value data to test the hypothesis, the result showed that the significance was 0.000 when viewed in the criteria for making hypothesis decisions in the t test, then H0 was rejected. This showed that there was a difference in the average score of students' independence assessment between the experimental class and the control class. That is, there is a significant average difference in learning the Project Based Learning (PjBL) model assisted by

the canva application on student independence.

DISCUSSION

Science learning with the PjBL model assisted by Canva can effectively increase the learning independence of grade V elementary school students. This is in line with the research of Nadliyanti et al., (2016) the PjBL model is effective for fostering student learning independence, student learning independence in experimental and control classes shows significant differences. In line with Mufida & Surjanti's research (2021) that the PjBL model can increase student learning independence. Learning independence is fostered by implementing appropriate learning. In this case, teachers need to make efforts by varying the learning process, whether it is an approach, method, or innovative learning model so that the expected goals are successful. The application of appropriate learning strategies and methods can lead students to become superior, independent, passionate, and highly oriented individuals. Independence requires responsibility, those who are independent are those who are responsible, take the initiative, have courage, and are willing to accept risks and are able to become learners themselves. Other research results from Martiani (2021) reveal that the PjBL learning model can increase independence.

CONCLUSION

The results of data analysis of student learning independence show that the application of the PjBL model assisted by the Canva application in the experimental class is better than the control class. This is evident from the results of the t test analysis showing the significance results of 0.00 <0.05, it is proven that there is a difference in the average scores in the experimental and control classes. The average score in the experimental class was 73.75 while in the control class it was 59.05. This data shows that the application of learning with the PjBL model assisted by the canva

application effectively increases student learning independence.

Declaration by Authors

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