



Implementation of Project Based Learning (PjBL) Learning Model with Canva Application to Increase Students' Interest in Learning Atomic Structure Material in Class X

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Abstract

This research aims to determine the application of the Project Based Learning (Pjbl) Learning Model with the Canva Application to Increase Students' Interest in Learning in Atomic Structure Material in Class X. The type of research that will be used in this research is quantitative research with experimental methods. The form of research used in this research is true experimental design. This research was conducted at Nommensen Pematangsiantar Private High School located at Jl. Sangnawaluh, No.4, Siopat Suhu, Kec. Siantar Tim., Pematang Siantar City, North Sumatra 21136. Based on the research results obtained, it can be concluded that: There is an influence of the Project Based Learning learning model with Canva to increase students' interest in learning the material. atomic structure in class. This proves that the experimental class has better interest in learning compared to the control class

Keywords: Learning Model, Project Based Learning (Pjbl), Canva Application, Interest in Learning

INTRODUCTION

Education has a very important role in improving the quality of human resources and determining the progress of the nation. (Heaviside, Manley, & Hudson, 2018). Education is an activity carried out in a planned manner to change or develop expected behavior (Purwanti, Safitri, Pusporini, Kusumaningrum, & Dewi, 2022). Education in schools is required to be able to form students who have broad experience, are creative, have digital skills and are flexible (Jusita, 2019). One of the successes of students in education can be seen from the results of learning at school. To achieve educational goals, motivation or encouragement is needed to be better. Motivation is a strong drive that makes someone move forward. Motivation can increase initiative and persistence in various activities. Therefore, motivation affects learning interest (Tanjung, Dalimunthe, Ramadhini, & Sari, 2022).

Interest is a source of motivation that drives someone to do what they want. Interest is a feeling of liking and high interest with self-awareness of something that is seen as providing benefits and satisfaction to oneself so that it encourages individuals to participate in the activity without being told (Fitri, Dasna, & Suharjo, 2018). While learning is a process in which a person's behavior arises or is changed through practice or experience. A high interest in learning tends to produce high learning achievement, conversely if the interest in learning is lacking, it will produce low achievement. Thus, what is meant by interest in learning is a feeling of pleasure, interest, and desire for the learning process that can provide benefits and satisfaction for oneself (Walunj, Gharibi, Alanazi, & Lee, 2022).

In chemistry lessons, there is a material called Atomic Structure. Atomic Structure is the smallest unit of a chemical element that maintains its unique identity and properties. Atomic Structure consists of three types of basic particles, positively charged protons, neutral neutrons, and negatively charged electrons. All three play a role in forming the atomic structure that affects the properties of matter. (Lestari, Sarwi, & Sumarti, 2018).

Problems that often occur in schools are due to weaknesses in the learning process that need to be addressed. If all chemical materials are taught conventionally and there is no variation, students will not be interested in Chemistry lessons so that students are lazy to study it and most likely students will not understand the lesson well (Vogler et al., 2018). To anticipate so that students' interest in learning can be increased, a teacher is asked to use a learning model that can attract students' interest in delivering the material and student concentration during the learning process (Furi, Handayani, & Maharani, 2018). In the teaching and learning process, students are required to understand what is meant by Atomic Structure and the basic particles of atoms, because it will be useful for students to learn the next material. This kind of thing is very troublesome for students and will make students feel lazy and will make students not interested in Chemistry lessons, especially in Atomic Structure material (Manurung & Simaremare, 2022). The lack of student interest in learning chemistry lessons on Atomic Structure material is now common in schools, both in public and private schools in Indonesia. Therefore, researchers conducted observations as an initial step to identify problems that occurred related to students' learning interests at school, and to consider alternative solutions at school.

In the 2022/2023 and 2023/2024 academic years, the Independent Curriculum is one of the options that has begun to be determined by educational units in every school in Indonesia, including at the Nommensen Campus Private High School in Pematangsiantar. The Independent Curriculum is determined at the Nommensen Campus Private High School in Pematangsiantar. Because it aims to develop students' competencies and characters so that educators have sufficient time to carry out in-depth and meaningful learning (Mutakinati, Anwari, & Kumano, 2018). Development of students' spiritual, moral, social, and emotional competencies, both by allocating special time and integrated with the learning process, such as the Pancasila Student Profile Strengthening Project (P5).

Based on a preliminary study on May 6, 2019 at SMAS Laboratorium Undiksha Singaraja, it was found that there were still many students who got low scores. This can be seen from the results of the Final Semester Assessment (PAS) of class X MIA students in the even semester of the 2018/2019 school year as a whole were below the school's minimum completion criteria (KKM), namely that 88.89% of students did not complete the minimum completion criteria (KKM) of 70 and class XI MIA students in the odd semester of the 2019/2020 school year as a whole were below the school's minimum completion criteria (KKM), namely that 91.11% of students did not complete the minimum completion criteria (KKM) of 75. Furthermore, the chemistry teacher emphasized that most students at SMAS Laboratorium Undiksha Singaraja were not enthusiastic about taking chemistry lessons. Students were less enthusiastic in answering questions given by the teacher and less enthusiastic in working on the questions given during chemistry lessons. Furthermore, the researcher conducted interviews with several students at SMAS Laboratorium Undiksha Singaraja on May 27, 2019. The results of the interviews showed that students of SMAS Laboratorium Undiksha Singaraja were less interested in chemistry subjects because for these students, chemistry subjects were too difficult and difficult to understand. Several students stated that they only liked chemistry lessons on certain materials because the material was easier to understand. This statement shows that the interest of students in learning chemistry at SMAS Laboratorium Undiksha Singaraja is still relatively low. Previous research conducted by Putri (2017) stated that students were less interested in chemistry lessons because most chemistry lessons were abstract and difficult to understand.

Based on the results of observations conducted on a chemistry teacher at a private high school, Nommensen Campus, Pematangsiantar, students have a relatively low interest in learning, this is indicated by the results of interviews with chemistry teachers at the private high school, Nommensen Campus, Pematangsiantar and the average value of chemistry lessons and Mid-Semester Summative (STS) which is 60, the lack of student interest in learning can result in a decrease in learning outcomes by 40%. According to the results of observations of learning activities in class X, several symptoms of lack of interest in learning chemistry lessons were shown, including: (a) Only 3 or 4 students paid attention to the teacher's explanation, while the other students were busy with themselves, (b) Students often slept in class rather than paying attention to the lesson, (c) Not all

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students participated in group discussions, (d) Rarely did assignments given by the teacher, (e) Some students did not bring books so that students only expected what the teacher explained, (f) Some students often went in and out of the classroom (Anggiehlia, Anisa, & Dalina, 2019).

To overcome this problem so that it is not sustainable, one of the models that can be applied by teachers is the Project Based Learning learning model. The Project Based Learning (Pjbl) model is a learning model that focuses on product development or performance, where the Project Based Learning learning model is carried out in groups, and then conducts studies or research, solves problems and synthesizes information (Anjarini, 2017). The Project Based Learning model uses an instructional approach above teaching and learning activities and students are faced with concrete problems, find solutions, work on projects in teams together in overcoming these problems (Aprianti, Negara, Ke, & Suadnyana, 2017).

In supporting more innovative Chemistry learning, especially Education in the current era, learning activities can use technology. The use of technology in the learning process has become a concern for all components of Education because it is considered an important factor in improving the quality of Education (Pusparini & Widyanarko, 2021).

One of the uses of technology in the Project Based Learning learning model is by using Canva. Canva is an application that is easy to use and is freely accessible for students. Students are encouraged to use creativity in Canva when completing a design that is chosen to be worked on (Almazroui, 2023). Along with the development of technology, Canva has become one of the popular applications used in creating visual content. Canva provides various features and templates that make it easy for users to create graphic designs, presentations, infographics, and other learning materials with an attractive and professional appearance (Pratiwi, Ardianti, & Kanzunudin, 2018).

Canva is very easy for students to use, so students can easily create attractive designs. In addition to being easy to do, Canva has thousands of free templates that can be customized to your needs. In addition, Canva's extensive library is very large and growing, so students can easily get various design elements that can be used in their respective media (Simanjuntak & Silalahi, 2022). By using the Canva application, chemistry learning becomes more innovative, can increase student interest in learning activities and also increase interest in learning by presenting teaching materials that attract students' attention (Warr & West, 2020).

The use of Project Based Learning using Canva makes it easier for students to understand in learning and get more concrete Atomic Structure material in Chemistry lessons that can be applied in everyday life (Chen & Yang, 2019). The application of the Project Based Learning model using the Canva application can have a great influence and effectiveness compared to Project Based Learning without using the Canva application which is usually applied by teachers.

From the description above, it is necessary to conduct research, with that the researcher is interested in conducting research, namely on "Implementation of the Project

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METHODS

The type of research that will be used in this study is quantitative research with experimental methods. Experimental methods are research used to determine the effect of a particular action or treatment that is deliberately carried out on a particular condition.

The form of research used in this study is true experimental design. (Kurniasih, Mastur, & Juhana, 2023). It is called a true experiment, because in this design the researcher can control all external variables that affect the course of the experiment, thus internal validity (quality of implementation of the research design) can be high. Where the experimental group was given treatment (X), namely the treatment of chemistry learning using the Project Based Learning learning model with Canva media and the control class that applied the conventional learning model.

This research was conducted at Nommensen Private High School, Pematangsiantar, located at Jl. Sangnawaluh, No.4, Siopat Suhu, Siantar Tim District, Pematang Siantar City, North Sumatra 21136. While time study implemented in the semester in August -September semester of the 2024 academic year.

Analysis used for hypothesis testing research that tested different or T test. The T test used namely Independent Sample T-Test. Independent Sample T-Test is the method used For compare two groups from two different samples (independent). In principle, the Independent Sample T-Test functions For know whether There is difference in means of 2 populations with comparing the two sample means . Testing hypothesis that is done with Independent Sample T-Test analysis in SPSS 2.1 program.

RESULTS AND DISCUSSION

Description of Research Results

Data Description

Study This conducted in private high schools Nommensen Pematangsiantar Campus from August 20 to September 12 . Study This aiming For know whether there is influence Implementation of Project Based Learning (PjBL) Learning Model With Canva App For Increase Interest in Learning Students on Atomic Structure Material . Population used in study This consists of from 2 classes that is class X-2 as class control with amount participant educate as many as 25 students and X-3 as class experiment with amount participant educate as many as 25 students .

Normality Test

Normality Test Questionnaire

Normality test results class control and class experiment from The results of the SPSS 2.4 program can seen from table following :

Table 1. Normality Test of Control Class and Experimental Class Questionnaires

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro Wilk		
	Statistics	df	Sig.	cs	df	Sig.
Initial questionnaire _learning_interest_control_class	0.123	25	.200 *	0.973	25	0.729
Final_questionnaire_learning_interest_control_class	0.163	25	0.085	0.892	25	0.012
Experimental class learning interest initial questionnaire	0.146	25	0.180	0.959	25	0.393
Final_questionnaire_of_learning_interest_in_experimental_class	0.150	25	0.153	0.961	25	0.438

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Based on the calculation results from the SPSS 2.4 program, all data in the control class and experimental class can be seen that the results of the normality test of the Kolmogorov Smirnov learning interest questionnaire show that the results of the control class learning interest show a sig. value of 0.085 while the experimental class learning interest shows a sig. value of 0.153. Where both are > 0.05. Therefore, it can be concluded that the data is normally distributed

Homogeneity Test

In the test used in the calculation of the SPSS 2.4 program is the Homogeneity Of Variance or Homogeneity test. The basis for decision making in the homogeneity test is as follows:

1. If the significance value of Based On Mean > 0.05, it can be concluded that the data variance is said to be the same or homogeneous.
2. If the significance value of Based On Mean < 0.05, it can be concluded that the data variance is said to be unequal or non-homogeneous.

To be clearer, the results of the homogeneity test on the research sample class from the SPSS 2.4 calculation results can be seen in the following table:

Table 2. Homogeneity Test Results Questionnaire

		Test of Homogeneity of Variance				
		Levene				
		Statistics	df1	df2	Sig.	
Learning Interest Questionnaire	Based on Mean	3,312	3	96	0.023	
	Based on Median	2,235	3	96	0.089	
	Based on Median and with adjusted df	2,235	3	90,123	0.090	

Based on trimmed mean 3,353 3 96 0.022

Based on the table above, the sig. Based On Mean value is 0.023 so it can be concluded that the sig data on the learning interest questionnaire of the control class and the experimental class are said to be the same or homogeneous.

Research Hypothesis Testing

The Independent sample t-test is used to determine whether there is an influence of the average of two unpaired samples. Requirements main In the Independent sample t-test , the data is normally distributed and homogeneous (not absolute).

Hypothesis:

1. If the significance value (2-tailed) > 0.05 then H0 is accepted and Ha is rejected.
2. If the value significance (2-tailed) < 0.05 then H0 is rejected and Ha is accepted .

Table 3. Results of the Independent Sample T-test

		Independent Samples Test									
		Levene's Test for Equality of Variances				t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
Questionnaire_Interest_Study	Equal variances assumed	5,688	0.021	-3,007	48	0.004	-3,960	1,317	-6,608	-1,312	
	Equal variances not assumed			-3,007	44,862	0.004	-3,960	1,317	-6,613	-1,307	

Based on analysis of the data above obtained sig. value (2-tailed) of 0.004 < 0.05 on the questionnaire interest Study student For class experiment . For class control with learning models conventional and class experiment using the Project Based Learning learning model . Can concluded that mark significant < 0.05 then Ha is accepted .

Discussion

Class X Private High School Nommensen Campus Pematangsiantar consists of from 3 rooms class , of which class X-2 is made as class control and class X-3 as class experiment . Class control is class that is not given treat with the Project Based Learning learning model Canva application , while class experiment given treatment with the Project Based Learning learning model Canva application , each class using different learning models on the material Atomic Structure . Execution time learning namely 3x45 minutes / meeting . Before learning started participant educate given questionnaire beginning and questionnaire end as many as 20 statements For know interest Study they before started material Atomic (Wahyuni, Alam, & Laliyo, 2023).

Researcher carry out the learning process with given different treatments in two groups class said . Class experiment treated with Project Based Learning and classroom learning models control with learning models conventional . After given different

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treatments , researchers give posttest questionnaire interest Study as many as 20 statements to participant educate .

Based on table normality test results questionnaire interest Study For class control and class experiment show normality test results Kolmogorov Smirnov namely sig value in class control 0.085 and sig value in class experiment 0.153. So the results of the normality test show that the data is normally distributed .

Based on table homogeneity test results questionnaire interest Study For class control and class experiment show results sig. Based On Mean value $0.004 > 0.05$ which means the data in the questionnaire interest Study nature homogeneous . Based on results questionnaire data analysis interest Study obtained sig(2-tailed) value is $0.004 < 0.05$, then can It is concluded that H_a is accepted and H_0 is rejected. (Damayanti, Nanggala, & Suryadi, 2023).

With thus , then researcher conclude that there is Influence between the Project Based Learning Learning Model and Canva App For Increasing Students ' Interest in Learning Atomic Structure Material for Class X.

CONCLUSION

Based on the research results obtained, it can be concluded that: There is an influence of the Project Based Learning learning model with Canva to increase students' interest in learning atomic structure material in class X. From the results of the final questionnaire data on learning interest in the control class with the conventional learning model, an average score of 13.47 was obtained and for the experimental class after being given the Project Based Learning learning model treatment with Canva, an average score of 14.89 was obtained. This proves that the experimental class has a better interest in learning compared to the control class.

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