



The Effectiveness of Model Flipped Classroom Learning in Elementary School

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Abstract. This research is experimental research. The test results proved that the learning model of flipped classroom effectively improved student learning outcomes on IPS material. Students with high proficiency in the experimental class increased their learning outcomes compared to the control class. Similarly, students with low proficiency in the experimental classes have increased their learning outcomes in their appeal with students in the control class.

Keywords: Effectiveness · Learning Model · Flipped Classroom

1 Introduction

A flipped classroom learning Model is a student-centered learning that has two parts of learning individually at home and classical in the classroom (Bishop and Verleger: 2013). Individual student learning by watching videos, reading books/literature, and hearing news later in a classifying classroom (mul: 2012), (Milman: 2012), (Toto and Nguyen: 2009). The purpose of this flipped classroom learning model so that students can build their knowledge individually. This fits perfectly with the Z generation and α . Generation Z and α who are elementary school students born from the range of years 1995–2030 (Putra, Y. S. 2017).

Generation Z and α are native digital generations and have a very short concentration (Supratman, L. P: 2018). They prefer to interact virtually. This we can see with them more often spend time in front of the screen HP and laptop. So they get the information they need indefinitely. They often communicate using social media (WA, FB, Twitter or IG) with their friends. This is a challenge for teachers to develop a learning model that involves the competencies of elementary school students as digital natively.

The problems encountered in Indonesia, especially in the province of West Sumatera, teachers explained the concept of learning materials in a classical class. Then give tasks to work at home. It does not help students to be able to build knowledge independently.

2 Research Methods

This research uses Quasi-experimental research methods, with treatment by block design such as the Table 1 (White, H., & Sabarwal, S: 2014).

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Table 1. Design Research

Research class	Category Tests	Preliminary Knowledge Test	Treatment	Test Result Study
Experiment (1)	Multiple Choice Test Learning Results (G)	X ₁ G	X ₁	Y ₁ G
Control (2)	Multiple Choice Test Learning Results (G)	X ₂ G	X ₂	Y ₂ G

Table 2. Initial Class Experimentation And Control Capabilities

	Early experimental class capabilities	Initial control class capabilities
N	30	30
Mean	48,83	48,80
Median	50,5	46,5
Mode	64	64,5
Std	17,795	17,77
Variance	316,645	315,77
Maximum	100	100

Research was conducted at SD Sabbihisma 1 Padang (experimental) and SD Adzkie 2 Padang (Control) in class VI (high) that has a distance of the school is quite far. The results of learning Data in the experimental or control class in the study were analyzed using T-Test. This is done to see the difference in learning outcomes from giving different learning models to two classes. The test-t results in each group experiment and control compared to the distribution table T. If the count T value is greater than the table T value, it indicates that there is a significant difference. Whereas t counts smaller than t table, it is interpreted that there is no significant difference (Sugiyono: 2014).

Before test-T carried out, conducted test analysis requirements. The analysis requirements test used in this study are test normality using liliefors test and homogeneity test using F test.

3 Results

Prior to testing on a flipped classroom learning model, a preliminary test of the experiment class and the control class was conducted. This initial test is a double choice on IPS material. This is intended for samples to have the same ability to IPS material. Based on the analysis of sample initial capability data as follows.

According to Table 2, it is known that the experimentation and control class capabilities are almost identical in IPS. From this data, students in the control class and experimentation are in a high and low ability criteria. Their initial abilities can be seen in the following 3 tables (Table 3).

Table 3. Early high and low proficiency class experiments and controls

	Early class high proficiency experiments	Low initial proficiency in experimental classes	Initial high capability control class	Early low-class control capabilities
N	8	8	8	8
Mean	70	26,75	68,75	26,75
Median	68,5	25	66,75	25
Mode	73	23,75	65,25	23,75
Std	4,24	17,77	2,56	6,86
Variance	18	47,06	12,70	47,06
Max	100	100	100	100

Table 4. Experimental and control class normality test

	L Count	L Table	Conclusion
N	30		
Experiment	0,125	0,161	Normal
Control	0,156	0,161	Normal

Table 5. Experimental class normality Test and control with early high and low ability

	L Count	L Table	Conclusion
N	8		
High experiments	0,148	0,285	Normal
Low experiments	0,250	0,285	Normal
High control	0,091	0,285	Normal
Low control	0,240	0,285	Normal

Students have the same initial abilities in the experiment class and the control class. Before the effective test is done by conducting the test-T, it is carried out test requirements analysis that is test of normality and homogeneity. This normality test is presented as follows.

According to Table 4 it can be concluded that the experiment class and the control class are normal distribution data. When viewed from students' initial high proficiency in the experiment classes and the controls are also normal distribution. Similarly, in students with low initial proficiency in experimental and control classes, a normal distribution is also provided. It can be seen in Table 5.

Table 6. Test the homogeneity of experimental and control class with early high and low ability

Test result	F Count	F Table $\alpha = 0,05$	Conclusion
Total	0,997	1,85	Homogeneous
Experimental and high-control classes	1,417	3,79	Homogeneous
Experimental and low-control classes	0,05	3,79	Homogeneous

Table 7. Experimental and control class-T test

Data	Class	
	Experiment	Control
N	30	30
π	62,70	48,73
S^2	148,74	320,65
t Count	3,548	
t Table	2	
Conclusion	Significantly different	

The homogeneity test can be seen in Table 6. Based on the table it can be learned that the experiment class and the control class are homogeneous. Both samples of this study also had homogeneous data, if viewed from the initial high and low ability.

All data are already distributed normal and homogeneous, then already meet the requirements in conducting effectiveness tests. Test the effectiveness of student learning outcomes using a flipped classroom learning model with test-T. Testing the effectiveness of flipped classroom learning models was performed on (1) students overall in experimental and control classes. (2) Students in experimental classes and controls that have high initial abilities. (3) Students in experimental classes and controls with low initial abilities.

The test of student learning that uses a flipped classroom learning model differs significantly from the learning outcomes of students who use the teacher’s usual learning model. The calculations can be seen in Table 7.

According to Table 7, it appears that the average student learning outcomes that use a flipped classroom learning model are higher than those students who study with the teacher’s usual model.

Test student learning outcomes that have high initial proficiency in the experimental and control classes can be seen in Table 8. Students’ learning outcomes with high initial proficiency using a flipped classroom learning model are significantly different from the learning outcomes of students using the teacher’s usual learning model. The calculations can be seen in Table 8.

Table 8. Experimental and control class-T test In students with high initial ability

Data	Class	
	Experiment	Control
N	8	8
π	79,5	70
S^2	45,16	18
t Count	3,381	
t Table	1,76	
Conclusion	Significantly different	

Table 9. Experimental and control classes in students with low initial ability

Data	Class	
	Experiment	Control
N	8	8
π	49,63	26,75
S^2	6,27	47,06
t Count	8,861	
t Table	1,76	
Conclusion	Significantly different	

In Table 8 it can be seen that the average student learning outcomes use a flipped classroom learning model higher than the usual learning models teachers in the classroom.

Test student learning outcomes that have low initial proficiency in experimental and control classes can be seen in Table 9. Students' learning outcomes with low initial proficiency using a flipped classroom learning model differ significantly from student learning outcomes using the teacher's usual learning model. The average student learning outcomes use a flipped classroom learning model higher than the teacher's usual learning model in class Perhitungannya dapat dilihat pada Table 9 berikut ini.

4 Discussion

Test results performed on experimental classes and control classes can be noted that the flipped classroom learning model is very effective at improving student learning outcomes. This is evident during the initial knowledge of the experimental class, students have an average of 48.83. Then there was an increase after using a flipped classroom learning model of 62.70. While the students who learn with the learning model used by the teacher, the results did not increase. This was seen on the average initial knowledge

of 48.40, then increased by 48.73. The improved learning outcomes of this control class are not too large.

The test results also proved that students with high and low initial abilities could improve their learning outcomes using the flipped classroom lesson model. This proves that the learning model used by the teacher must be in accordance with the characteristics of the students in his day.

This increase in learning outcomes is influenced by students' motivation for learning. Students can learn with maximum if they are not under pressure. They can learn according to their skills and time. Students can study the material teachers provide before learning in class repeatedly. So they can understand the material according to their respective abilities (Unal, Z., & Unal, A: 2017). Teachers can use a variety of learning media to use this flipped classroom learning model. The media that is preferred by students is a video media that contains material explanations by their teachers (Chandra, F. H., & Nugroho, Y. W: 2016).

5 Conclusion

The results showed that a flipped classroom learning model was very effective at improving the learning outcomes of all students in IPS material. Students with high initial proficiency in the experimental class increased their learning outcomes compared to the students' initial high proficiency in the control class. Students with low initial proficiency in experimental classes have improved their learning outcomes.

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