Effectiveness of Online Learning Using Flipped Classroom Model Towards Mastery of Concepts and Students' Interpersonal Intelligence

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Abstract. Interactive online learning with students first learns learning materials through the Flipped classroom learning model in learning to improve students' concept mastery skills and interpersonal intelligence in the online-based learning process. The purpose of this study measured the effectiveness of the Flipped classroom model towards the mastery of concepts and interpersonal intelligence of elementary school students. Quantitative research method type experimental quasi design with non-equivalent design one group pretest and posttest. The population of grade 5th students of SD Negeri 1, Research sample of 50 students. Research data collection techniques using test questions and questionnaires. Data analysis techniques use simultaneous test and t independent sample test. The results showed an f-test of 10.87 while the table was 4.99 and the T-test showed an at-count of 8.22 while 3.4. The results of the data analysis showed significant differences in the mastery of concepts and interpersonal intelligence by using flipped classroom models in the learning process. The conclusion of this study is that applying flipped classroom model in online learning is very effective in improving the mastery of concepts and interpersonal intelligence in elementary school students with students first learning the material before learning begins.

Keywords: flipped classroom; concept mastery; interpersonal intelligence.

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INTRODUCTION

The effectiveness of applying online learning with flipped classroom model is a form of innovative learning both online by emphasizing the process of self-learning to students (Lee, 2018). The selection of learning models and appropriate methods and media in accordance with the material being taught will result in an optimal learning process (Sarwi et al., 2018). Learning using flipped classrooms is very helpful in this, it supports government policy in efforts to prevent the transmission of the covid-19 virus in the educational environment through the self-learning process of students at home through the online learning process. Self-learning online by integrating the learning model in the concept of self-learning with the utilization of various features in online applications, Online learning challenges require teachers to increase capacity in creating a fun learning process and provide a learning experience, to minimize the level of saturation of students on online learning problems, teachers should be able to collaborate, various models of defenders to be used in the online learning process should be done not only to provide tasks to students but to improve and cultivate the ability to master concepts and interpersonal intelligence to students conducted by teachers for the process of achieving online learning through the role of teachers (Wahyono et al., 2020).

Online learning problems can be minimized by using innovative models such as flipped classroom which is one of the innovative learning models that direct Kemdikbud to be used in the learning process in online classrooms, flipped classroom model that is by flipping an activity on learning, which is a learning activity that is usually done in the classroom can now be completed in learning from home and learning activities that are usually dis completion at home can now be completed in class through syntax on the flipped classroom model that fits the concept of self-learning students from home (Rahmah, 2018). The process of self-learning students through the learning syntax of flipped classroom models emphasizes to students to first learn the material before learning is done in an online classroom, according to (Yulianti et, al 2015) learning using the flipped classroom model is a learning model that instructs students to learn the material shared by the teacher to be learned at home before the learning begins. Milman, (2012) learning using flipped classroom model is the opposite of conventional learning that is often used in schools. Whereas according to Johnson (2013) learning to use and implement the online learning process with model flipped classroom can maximize learning with students first oriented to first learn the material that will be delivered by

the teacher so that the learning will be more effective and students more active with continuous application. The continuous implementation of the flipped classroom learning model by teachers in the online learning process can help strengthen the learning process in students so that it has a significant impact on students. Walidah et al., (2020), the application of flipped classrooms has a significant impact on student learning outcomes with the help of a learning video media shared through the Online application for students to learn before online learning begins.

The concept of flipped classroom learning model is very suitable to be used in learning in schools both online and offline to improve the learning process in school. Rindaningsih et al., (2019) proved by designing learning using flipped classroom models proved effective, valid, and practical to be applied by teachers in schools. The use of flipped classroom model is very helpful in the learning process in the classroom with students first learning the materials that will be discussed in the learning classroom this makes flipped classrooms very effective to use, (Saputra et., al, 2018). The effectiveness of online learning using flipped classroom model is a solution in learning by optimizing the advantages of flipped classroom model, (Susanti, et.al., 2019) flipped classroom is very suitable in applying to learning in the era of digitalization in the world of education. Wulandari, (2017) that the use of flipped classroom models requires learners to be more independent and active in the learning process so that it is suitable for use in online learning from home. Effective learning provides an experience to students through learning on learning fosters a spirit in the learning process (Santriwati, 2020).

Sarwi, (2018) said that an effective class can be demonstrated by the achievement of competence by most students in the class as well as the ability of students in mastering a concept of learning materials. The purpose of the study was to determine the effectiveness of the flipped classroom model on interpersonal intelligence and mastery of student concepts in elementary school online learning.

METHOD

Research Goal

The purpose of this study is to measure the effectiveness of the Flipped classroom model towards the mastery of concepts and Student's interpersonal intelligence of elementary school students in online learning.

Sample and Data Collection

The samples in this study were 50 students consisting of two experimental classes and two control classes with Purposive Sampling techniques. The design of the research design can be described as follows:

A	**Q_1**	**X_1**	**Q_2**
B	**Q_3**	**X_2**	**Q_4**

Figure 1. Design with nonequivalent control group design

A: Experiment Group
B: Control Group
X1: Treatment with Flipped classroom
X2: Treatment of regular learning model
Q1: Pre-test Experiment Group
Q2: Pre-test Control Group
Q3: Post-test Experimental Group
Q4: Post-test Control Group *Analyzing of Data*

Data collection techniques in this study using a test technique is a multiple choice question to see the understanding of concepts in students while non-test uses a student's interpersonal intelligence questionnaire. Then the data is processed using data analysis techniques using simultaneous tests and independent sample t-tests on research data.

RESULTS AND DISCUSSION

The findings of the study using flipped classroom model has an effectiveness of 10.50% compared to the highest level of learning from home through online application platforms using models and approaches regularly in learning with an influence value of 3.50%.this is supported by the results of post-test comparison and the results of the questionnaire of the two classes with the average score of the experimental class 89.52 while the average value of the control class is 77.08.Hypothetical test results of the experimental class and control class showed the data at thitung 8.29 with table T 1. has a significant value both data thus the learning model using flipped classroom affects the mastery of concepts and interpersonal intelligence of students.Further testing of students' interpersonal intelligence. The results of the analysis showed that significant effectiveness data between the experimental class and the

control class can be seen in the table of analysis results as follows:

Table 1. Concept Mastery t-Test Results

	Experimental Class	Control Class
Mean	89.52	77.08
Sampel	50	50
t hitung	8.29	
P(T<=t) one-tail	2.89	
t Critical one-tail	1.66	
P(T<=t) two-tail	5.79	
t tabel	1.98	

Table 2. Student Interpersonal Intelligence t-test results

t-Test: Two-Sample Assuming Equal Variances	Experimental Class	Control Class
Mean	85.76	64.74
Variance	18.51	43.58
Observations	50	50
Pooled Variance	31.04	
df	98	
t Stat	18.86	
P(T<=t) two-tail	2.19	
t Critical two-tail	1.984	

Discussion

The process of online learning using flipped classroom model can be that there are influences and differences to the mastery of concepts and interpersonal intelligence of students on calorific material to changes in temperature and the form of objects in daily life. Thus it can be concluded that the flipped classroom model as an innovative learning model that fits the concept of self-learning is needed in the learning process. The learning process by collaborating flipped classroom models makes learning more innovative and engaging with the help of online applications such as Whapshap grub and Zoommeatting. The learning process begins with the student first learning the material related to the calorific and the transfer, then the student learns through the learning video and the material shared through Whapshap grub, the teacher instructs the student to fill out the activity sheet during the learning of the learning material that has been shared.in the learning process in the classroom after students have studied the video material that has been shared with students.

Then the teacher asks the students to present the questions that have been designed related to the calorific material and the process of transferring heat used around the student's home, then the teacher asks the student to respond to the questions that have been presented. The learning process continues with discussion and questioning to train students to be able to accept and appreciate the efforts of their classmates by giving appreciation to their friends through applause and gratitude to foster sympathy and empathy towards friends and train the social soul of their friends in an effort to improve interpersonal intelligence skills in students. Further learning activities students are directed to relearn and discuss the materials in the learning video by integrating students' daily activities at home with the process of utilizing heat transfer in daily life, associating the utilization of heat in technology that can be used at home, instructing students how to use heat transfer techniques for utilization in the process of life. These stages are supported by RPP, student daily worksheets and LKPD that have been prepared by teachers. At this stage, students master the concept of heat transfer so as to provide stimulus to students to be able to master and utilize the concept of heat transfer. Mastery of interpersonal concepts and intelligence can be seen from the results of the acquisition on the pretest and posttest and the student's interpersonal intelligence questionnaire.

Learning with flipped classroom model in the learning process students are able to provide a stimulus by integrating art in the learning process so as to give a color and interest to students happy in the role learning process gives a significant role to the online learning process that is judged by many that online learning makes a limitation on the learning process of students independently from home online. The concept of self-learning from home utilizing the features of online applications by integrating flipped classroom models in the online learning process in schools has a significant influence on student learning, so as to minimize online learning problems during pandemic emergencies, this is supported by several research results related to the use of flipped classroom models along with several related studies. The results of this study are corroborated by previous research by (Wulandari, 2017) stated in his research that one of the suitable forms of learning in e-learning is to use flipped classroom method with the results of research Students are more active in the learning process using flipped classroom model in the e-learning learning process because students first understand the learning materials before class begins. Rusnawati, (2020), stated that there are significant differences in students' learning outcomes and learning motivations between classes using flipped classroom models and conventional classes. So et al., (2019).

Lee, (2018) the use of Flipped classroom

model in classroom learning has an influence on the development of insights towards creative in encouraging a learning in the classroom more actively and improving students' academic achievement, Min-Kyung Lee also stated "Implication of the Flipped classroom as an alternative future class model in korea society". Wardani, (2016) the problem with mastery of concepts in students is that learning is too central to teachers. The important role of teachers is very dominant in improving compound intelligence in students with video-assisted, teacher-prepared learning (Hajhashemi et al., 2018). Arisanti et al., (2016) develop knowledge and thinking skills towards mastery of concepts strongly influenced the learning style in teachers. Flipped classroom learning model through strengthening learning with the help of video media and Moodle that positive attitude flipped classroom has a correlation or relationship to increased motivation, engagement, and improved learning in students who have low achievement (Nouri, 2016). Yang, at.al. (2020) that with the use of flipped classroom learning model is strongly influenced by the spirit of student participation in the learning process in achieving an ability such as high-level thinking. Train students to think high levels, practice communication, collaboration and critical thinking and be able to solve a problem, increase students' creativity. Zou, (2020) in the learning process using a Gamified-assisted flipped classroom model can increase motivation and engagement as well as skills development and confidence and help in influencing performance improvement and learning outcomes. Sarwi et al., (2021) teacher support in the learning process is very important for students' success in the distance learning process.

The online learning process using the flipped classroom learning model is very effective in the learning process by utilizing features in the online application, the use of the flipped classroom model in this study is very effective in mastering concepts and interpersonal intelligence with students first studying the material to be discussed in online learning and can build interactive communication between students and teachers so that the online learning process does not become a barrier in the delivery of learning to students in an effort to meet educational needs.

CONCLUSION

The conclusions in this study show 1). Students' interpersonal intelligence skills by integrating flipped classroom models contribute to training and improving students' interpersonal intelligence skills with higher contribution criteria compared to control classes with moderate criteria. Data analysis test results using t-test showed significant contributions or influences between the experiment class and the control class.2). The mastery skills of the student concept by using the design of learning using the concept of Blended Learning with flipped classroom model showed a significant difference between the experimental class and the control class learning with the results of the t-test and simultaneous tests showed that the number of significant differences between the two classes compared. The concept mastery skills in the experimental class showed the results were higher while the concept mastery skills in the control class showed moderate results.

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