

# The Effectiveness of STAD Model Based on the Art Education Application Module on Students' Achievement and Attitudes

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## Abstract

This study aims to measure the effectiveness of the *STAD* (Student Team Achievement Division) model of cooperative learning method based on the Art Education Application Module on the achievement and attitude of year four students in Tamil national type schools (SJKT). The research design employed a quasi-experiment method by dividing the research participants into two groups. The experimental group was taught using the *STAD* learning method based on the year four Art Education Application Module. Whereas the control group was taught using a conventional method based on textbooks. This study involved 62 Year Four students from two Tamil primary schools in the district of Kulim, Kedah. The study was conducted for eight weeks. The instruments used in this study are lesson plans based on *STAD* model learning methods, pre-tests, post-tests and attitude questionnaires. The results of this study were analyzed using independent t-test and two-way ANOVA. The findings of the study show that the experimental group taught using *STAD* learning method significantly increased the mean achievement score compared to the control group taught using conventional textbook-based methods. In addition, the experimental group attitude towards the art education subject showed a higher mean score compared to the control group. Finally, this study indicates major implications for year four SJKT students' improvement of achievement and attitude in the art education subject.

**Keywords:** Art Education, Experiment, *STAD*, Learning Methods, Attitude

## Introduction

Art Education is an important component of the national curriculum at the primary school level. This subject contributes to the Malaysian Ministry of Education's efforts to educate a holistic and balanced student in line with the National Philosophy of Education. Art Education emphasizes on the four curriculum modules namely Art Language, Art Skills, Art Creativity and Innovation, as well as Art Appreciation. The content of the module is complementary so that students can apply the knowledge, skills and values learned from one module to another. Art Education provides students with a unique experience to explore their potential, build generic and social skills to become creative and innovative human beings (Standard Primary School Curriculum, 2018).

Mastery of Content Standards (SK) and Learning Standards (SP) in the Art Education subject enables students to acquire the 21st Century Skills. Various approaches can be used in designing teaching and learning to achieve the learning standards of Art Education. Among the approaches that can be used in Art Education are inquiry-based learning; problem-based learning; module-based learning; themed approach and interdisciplinary approach. To achieve this goal, teachers play an important role in diversifying their teaching and learning methods (Bavani & Mahamod, 2017). In the Art Education lessons, the appropriate teaching and learning methods used by teachers directly enhances students' understanding as it attracts students' interest. One of such important and effective methods is the cooperative learning method of the *STAD* model (Student Team Achievement Division). The *STAD* model of cooperative learning method is a student-centered method that gives students the opportunity to solve problems in groups (Malar, 2013).

Most studies show that students are uninterested in the Art Education study due to teachers' less effective and boring teaching methods. Non-innovative lessons conducted by teachers make students feel that Art Education is not a challenging subject. Therefore, innovative teaching and learning approaches are needed to make Art Education more interesting for students.

### **Research Objective**

This research research comprises of 2 objectives:

RO1: To identify significant differences in mean achievement scores between experimental groups taught using the *STAD* model of cooperative learning method based on the Art Education Application Module and the control groups taught using textbooks.

RO2: To identify the effect of significant interaction between the attitudes of students in the experimental group taught using the cooperative learning method of the *STAD* model based on the Art Education Application Module and the control group taught using textbooks.

### **Literature Review**

#### **Cooperative Concept**

Cooperative methods are one of the innovative teaching strategies (Chan, 2014). Cooperative methods take into account the cognitive, behavioral, emotional and social aspects of students. The level of learning in cooperative methods is not only for oneself, but also for others or friends. The five basic elements in cooperative learning are positive interdependence; face-to-face interaction; individual accountability for self-learning; collaboration skills; group processing (Vaughan, 2002). There are several types of strategies that can be used in cooperative learning. Among them are (1) group investigations (Group Investigation); (2) Student Team Achievement Division (*STAD*); (3) Jigsaw; (4) Team-Accelerated Instruction (TAI); (5) Team Games Tournament (TGT). In this study, the *STAD* model learning method (Student Team Achievement Division) is used. An important feature of the *STAD* model learning method is group presentations, demonstrations and individual interactive quizzes. In addition, group scores were evaluated based on group presentations and individual interactive quizzes. The winning group will be rewarded and praised (Malar, 2013).

### *STAD* Model

Cooperative learning methods are used in various age groups but they are very popular methods in primary school (Robert, 2015). One of the cooperative learning methods is the *STAD* model of cooperative learning method. This method is student-centered and based on the theory of social constructivism developed by Vygotsky. This method emphasizes cooperation among students and encourages group learning. Students will work in small groups and work together to complete assignments, share ideas and help each other solve problems. All group members need to be actively involved and the teacher acts as a facilitator. *STAD*'s cooperative method is indeed stressful and focuses on student engagement as opposed to the usual teacher-centered method. Students will actually have a high level of confidence and motivation, dare to contribute ideas and give views and active involvement through the learning of this cooperative method of *STAD* while the teacher only acts as a facilitator. In conclusion, learning through the *STAD* Cooperative Method is the only method that is very interesting in accordance with the current situation today. Apart from that, the *STAD* Cooperative Method itself has many benefits to students and will indirectly improve school performance (Rahim@Ibrahim et al., 2017).

### Review of Related Studies

The cooperative learning method of the *STAD* model encourages each group member to communicate with each other to express opinions, ideas or to obtain information. In addition, the *STAD* teaching method is also a collaborative activity between groups to complete group assignments and answer quiz questions spontaneously. Spontaneous quizzes provide an opportunity for students to gradually assess their mastery in the subjects taught (Malar, 2013). According to Altun (2015) cooperative learning cannot be taught orally. Even cooperative learning requires students' involvement to work together in groups, developing a product and evaluating them. Past studies have shown that cooperative learning can be used to improve student achievement (Vaughan, 2002; Iyer, 2013).

The findings of Bavani and Mahamod (2017) prove that cooperative learning as a teaching approach reduces disciplinary problems that would interfere with the classroom learning. In addition, cooperative learning strategies are not only attractive to students but they also engage in active learning. The study of Ocampo and Bascos- Ocampo (2015) also proved that students who are exposed to cooperative learning methods of the *STAD* model have improved their attitudes and achievement in Physics. In addition, the study of Ismaon et al (2013) also showed that the cooperative learning of the *STAD* model has brought about a good change in students' attitudes towards mathematics.

The findings of Wyk (2012) study also show that cooperative learning of the *STAD* model forms a positive attitude; improving student achievement and motivation in economic subjects. In addition, Tran's (2014) study also stressed that cooperative learning has a positive effect on student achievement and knowledge consistency. In addition, his study shows that learning based on students' own assignments and involvement in the cooperative learning process maintains student achievement despite delays in testing. The study of Gull and Shehzad (2015) in the social sciences also supports the findings of other studies stating that student achievement increases in cooperative learning activities. The level of motivation of students in his study also increased when they helped each other and worked in groups.

### **Construction of Year Four Art Education Application Module**

The fourth year Art Education Application Module was built based on the ADDIE Model based on the Curriculum and Assessment Standard Document (DSKP), Art Education Year 4. The *ADDIE* Model was developed by Dick and Carry (1996). The *ADDIE* model is a design model that serves as a guideline towards the production of teaching and learning materials. The *ADDIE* model is a teaching model that is often used as a basis for teaching and learning design models. The purpose of this designed model is to produce teaching plans and learning materials which ensure more effective and efficient delivery of a lesson. Based on the *ADDIE* model, there are five phases in the process of building this module. Art Education Application Module Year 4 is a module built to help students understand the content of Art Education subjects. This module is produced in the form of print media that contains a combination of notes and exercises broken down according to sub-topics as well as teaching and learning objectives to be achieved. The material production guide is presented in the form of colored pictorial sequences. This aims to attract students and make it easier for them to understand the lesson content without teacher's assistance.

### **Research Method**

The design of this study applied the quasi-experimental method. The study was conducted for eight weeks. The study sample consisted of 62 year four students from two Tamil national type schools in Kulim district, Kedah. A total of 32 subjects from school A were selected as the experimental group. Meanwhile, 30 subjects from school B were selected as the control group. Each school represents a study group so that the teaching given to one group does not affect the other group. Subjects from both groups were students with almost the same level of achievement. The experimental group was taught using the cooperative learning method of the *STAD* model (Student Team Achievement Division) guided by the Art Education Application Module and the control group is taught using textbooks.

In this study, two types of instruments were used. That is, pre-test and post-test questions to measure student achievement. In addition, the questionnaire is adapted from the questionnaire The Aiken Attitude Scale (Tran, 2013) is used to measure student attitudes. The validity of pre-test and post-test is done by an experienced committee head. Validity of Art Education Application Module and attitude questionnaire were conducted by two lecturers from the Art Education unit, IPGK. A pilot study was conducted to measure the reliability of pre-test and post-test questions as well as attitude questionnaire items. This is to ensure that students can understand all the instructions and requirements of the question.

Researchers have trained teachers who teach experimental groups about the steps of the *STAD* model cooperative learning method. The experimental group teachers were provided with teaching topics, lesson and learning plans as well as teaching aids for cooperative learning methods of the *STAD* model for eight weeks. While the control group teacher was only provided with a textbook with the same teaching topic as the experimental group teacher. In the first week the experimental group and the control group were given pre-tests and attitude questionnaires. From the second week to the seventh week the experimental group was taught using the cooperative learning method of the *STAD* model. While the control group was taught using conventional methods. In the eighth week the experimental group and the control group were given post-tests and attitude questionnaires. Researchers have observed the teaching and learning of the experimental group and the control group

four times to ensure that the teachers have followed the teaching and learning steps that have been provided.

## Findings

### *Descriptive Data Analysis*

#### *Demographic Information of the Study Sample*

The subjects of this study consisted of 62 students who are studying in two national Tamil type schools in Kulim District, Kedah. The study was divided into two groups, namely the experimental group and the control group. A total of 32 subjects of the experimental group were given treatment using the cooperative learning method of the *STAD* model based on the Art Education Application Module for the fourth year. A total of 30 control group subjects were taught using textbooks. Table 1 shows the descriptive statistical results of the demographic variables of the students involved in this study.

Table 1  
*Frequency Distribution and Percentage of Study Subjects*

Group	Gender		F
	Men	Women	
Experiment	12	20	32
Control	(37.5%)	(62.5%)	30
	14	16	
	(46.7%)	(53.3%)	
Total	26	36	62
	(41.9%)	(58.1%)	

Table 1 shows that a total of 12 students (37.5%) were male subjects and 20 students (62.5%) were female subjects involved in the treatment of the experimental group. While the control group consisted of 14 students (46.7%) were male subjects and 16 students (53.3%) were female subjects. All students involved in this study were 10 years old.

### *Inference Statistical Analysis*

#### *The First Zero Hypothesis of the Study*

Ho1: There is no significant difference in the mean achievement score between the experimental group taught using the *STAD* model cooperative learning method based on Art Education Application Module with the control group taught using textbook.

Table 2  
*Mean Pre-Test and Post-Test Achievement Scores*

Group	N	Pre-Test		Post Test	
		Min	SD	Min	SD
Experiment	32	30.14	8.53	76.23	10.70
Control	30	26.45	10.44	48.57	12.09

Table 2 shows the mean pre-test achievement scores for the experimental group (N = 32) are (M = 30.14, SD = 8.53) while the mean post-test achievement score is (M = 76.23, SD = 10.70). This shows an increase in the mean score for the experimental group is 46.09. Next, the mean achievement score for the pre-control group test (N = 30) is (M = 26.45, SD = 10.44) while the mean post-test achievement score is (M = 48.57, SD = 12.09). The mean increase for the control group was 22.12. This means that the mean difference in achievement score for the experimental group is higher compared to the mean difference in achievement score for the control group.

Table 3

*T-Test: Effects of Experimental Group Teaching and Learning with Control Group*

Group	N	Min Beza	SD	Value- t	df	p
Experiment	32	46.09	10.13	9,126	60	0.000
Control	30	22.12	9.85			

Significant level of  $p < 0.05$

Table 3 shows the mean differences for the experimental group (M = 46.09, SD = 10.13) compared to the control group (M = 22.12, SD = 9.85). Exams *Levene's* shows the existence of similar variance between two groups of students namely (F (2,60) = 0.84, p = 0.332) at significant levels  $p < 0.05$ . Moreover, the independent t-test showed that there was a significant difference between the mean scores of the experimental group and the control group  $t = 9.126$ ,  $df = 60$ ,  $p = 0.000$ ). This means that the null hypothesis (Ho1) can be rejected. This indicates that the experimental group taught using the *STAD* method guided by the Art Education Application Module helps the subject to get a higher and significant achievement score compared to the control group subject taught using textbook.

### The Second Null Hypothesis of the Study

Ho2: There was no significant interaction effect between group student attitudes experiments taught using the cooperative learning method of the *STAD* model guided by the Art Education Application Module with the control group taught using textbooks.

Table 4

*Two-Way ANOVA Test Comparison of Achievement Levels based on Student Attitude*

Main Impact	Amount	df	Min	Value F	Level
	Power		Power		Significant
	Two		Two		( p )
Group	6879.82	1	6879.82	52.10	0.000
Attitude	155.02	1	155.02	1,174	0.283
Group *	11.89	1	11.89	0.090	0.765
Attitude	8451.05	58	132.05		
Error	298853.00	62			
Amount					

Significant level of  $p < 0.05$

Table 4 shows that there is a significant difference between the mean post-test score scores for the groups taught using the *STAD* model cooperative learning method based on the Art Education Application Module with textbook teaching  $F (1,58) = 52.10$ ,  $p = 0.000$ .

Furthermore, there was no significant difference between the mean post-test score scores according to the low attitude level and the high attitude level  $F(1,58) = 1.174, p = 0.283$ ). The subjects of the experimental group taught using the cooperative learning method of the *STAD* model based on the Art Education Application Module gave a higher reaction in the attitude level compared to the control group taught using textbooks. Finally, table 5.4 also shows that there is no significant interaction effect between the experimental group taught using *STAD* model cooperative learning method based on Art Education Application Module with control group taught using textbook where the level of attitude in terms of mean score of post test scores  $(1,58) = 0.090, p = 0.765$ . Therefore, the formed null hypothesis ( $H_02$ ) is accepted. Figure 5.1 shows a graph of the effect of interaction between groups with attitude levels.

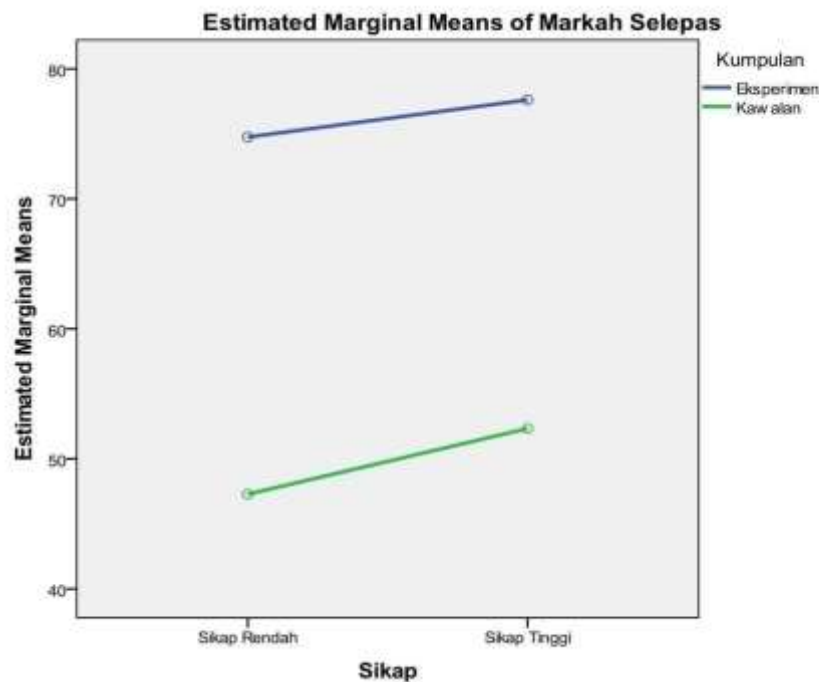


Figure 1: Graph of the Effect of Interaction between Groups and Levels Student Attitude

## Discussion

The findings show that the subjects of the experimental group taught using the cooperative learning method of the *STAD* model based on the Art Education Application Module have obtained a higher and significant mean score of achievement compared to the subjects of the control group taught using textbooks. The findings of this study are in line with the findings of the study (Vaughan, 2002; Malar, 2013; Iyer, 2013). In addition, this study also showed an increase in the mean score of the subjects of the experimental group taught using the cooperative learning method of the *STAD* model based on the Art Education Application Module gave a higher reaction in the attitude level compared to the control group taught using textbooks. The findings of this study support the findings of the study (Van Wyk, 2012; Zainun Ismaon et al., 2013; Tran, 2014; Gull & Shehzad, 2015; Ocampo & Bascos-Ocampo, 2015; Bavani & Mahamod, 2017). Overall, the findings of this study indicate that the use of cooperative learning methods of the *STAD* model in the teaching and learning of art education has a positive impact on student achievement and attitudes.

**Implications of The Study**

The use of appropriate methods will certainly have a positive impact on the pupil if the teacher has made a full and neat preparation for each teaching step to be delivered. This will create an active learning environment where all pupils engage in various fun activities. This will encourage more effective interaction in the more meaningful teaching and learning process. Based on the findings of this study, it is clear that art activities based on the *STAD* method can enhance the integration of learning domain among students in terms of cognitive development, affective construction and psychomotor management simultaneously. Systematic teaching and the use of appropriate methods can increase awareness and skill potential towards Arts Education (Plows, 2014).

The findings of this study have implications for the relevant parties, especially students, teachers and the school. Certain teaching and learning methods using teaching modules can improve students' academic achievement and attitude. In addition, the method of using teaching and learning modules in teaching can also help teachers to be facilitators to students. Teachers can guide students on how to use the correct teaching and learning modules in line with students' abilities. Art Education teachers are advised to build teaching and learning modules according to the ability of students. The school should also encourage teachers to build and use their own teaching and learning modules in the teaching and learning process. Besides, the school can organize inservice courses (LDP) related to the construction of effective modules towards improving academic achievement and student attitudes. Online teaching and learning modules can be developed so that the collection of teaching modules can be stored and accessed by students and teachers.

**Conclusion**

The results of this study show that the cooperative learning method of the *STAD* model based on the Art Education Application Module on the achievement and attitude of students in Art Education subject has a good effect. Therefore, it can be concluded that the use of the Art Education Application Module is suitable to be utilized as one of the teaching and learning strategies of Art Education. In addition, the teaching and learning process of Art Education can be implemented in a more organized and planned manner.

Arts Education is a subject that emphasizes the development of students and becomes the pillar to give a paradigm surge to produce people that are balanced and harmonious in terms of intellectual, spiritual, emotional. The diversity of techniques and methods used in arts activities can stimulate the motivation and creativity of students. The study also proved that the art field seen in the aspect of art as a medium of communication and self-expression is one of the techniques that can be used in forming a more creative, innovative and productive human capital. Methods guided by arts education modules can enhance creativity and smooth the teaching and learning process. This method also provides complete guidelines so that teachers can implement student-centred teaching and give confidence to the students. Thus pupils can increase their ability to develop themselves and explore artistic creativity to produce original and unique ideas in artworks (Zakaria and Anuar, 2019).

Teaching and learning that uses cooperative learning methods of the *STAD* model based on the Art Education Application Module open a wide space for students to explore their own learning. Meanwhile, teachers can act as facilitators who control student learning. This study has given clear implications for more enjoyable lessons which encourages students' active



involvement in Art Education. Finally, the researcher hopes that further research contributes more inputs in terms of the cooperative learning method of the *STAD* model based on the Art Education Application Module in the Art Education teaching and learning.

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