Journal of Educational Research and Evaluation
Volume 3, Number 2 Tahun 2019, pp. 46-57.
P-ISSN: 2597-422x E-ISSN: 2549-2675
Open Access: https://ejournal.undiksha.ac.id/index.php/JERE

The Effectiveness of Cooperative Learning Model of the TSTS Type Observed From the Interpersonal Intelligence Toward the Mathematical Competency

G.N. Sastra Agustika[1*], Ni Md. Yusi Lestari[2], I Wyn. Wiarta[3]

[123]*Universitas Pendidikan Ganesha*

ARTICLEINFO

Article history:
Received 15 February 2019
Received in revised form
29 March 2019
Accepted 18 April 2019
Available online 25 May 2019

Keywords:
Interpersonal Intelligence, Mathematics

ABSTRACT

This study aimed to find out the effectiveness of cooperative learning model of the Two Stay Two Stray type observed from interpersonal intelligence toward Mathematical competency on the fourth grade at SDN Moh. Hatta. This study was a quasi-experimental design with 2 x 2 factorial design. The population of this study were 244 students on the fourth grade of SDN Moh. Hatta in academic year of 2018/2019. The selection of the control group and the experimental group was conducted randomly. The data were collected using test and non-test methods. The data were analysed using 2-lane variance analysis. Based on the results of 2-lane variance analysis, it is obtained that (1) F_A = 10,606 > $F_{tabel\ (\alpha\ =\ 0,05;\ 1;75))}$ = 3,969. Therefore, the null hypothesis (H_0) is rejected. It signifies that "there is a significant difference in Mathematical competency between group of students who are taught through cooperative learning model of Two Stay Two Stray type and group of students who are taught using conventional learning", (2) F_B = 0,201 < $F_{tabel\ (\alpha\ =\ 0,05;\ 1;75))}$= 3,969. Therefore, the null hypothesis (H_0) is accepted. It means that "there is no significant difference in Mathematical competency between students who have high interpersonal intelligence and students who have low interpersonal intelligence on Mathematical competency", (3) F_{AB} = 0,502 < $F_{tabel\ (\alpha\ =\ 0,05;\ 1;75))}$= 3,969. From the last results, the null hypothesis (H_0) is accepted. It means that "there is no significant interaction between cooperative learning model of Two Stay Two Stray type and interpersonal intelligence on Mathematical competency. The results of the treatment effectiveness calculation obtained the score of n^2 = 0,122 . Overall, it can be concluded that the application of the learning model has an influence on the Mathematical competency by 12,2%.

Corresponding author.
E-mail addresses: sastraagustika@gmail.com (G.N. Sastra Agustika)

1. Introduction

Quality education is needed to support the creation of intelligent human beings who are able to compete in the future. Through the education, students are able to acquire knowledge and develop their potential. The efforts of teachers to develop student's personal potential are carried out in the learning process which is guided by the curriculum.

The regulations of the Indonesian Ministry of Education and Culture Number 57 of 2014 States, 2013 Curriculum aims to prepare Indonesian people to have life skills as individuals and citizens who are godly, productive, creative, innovative, and affective and able to contribute to the life of the world, nation, state and world civilization.

The role of the curriculum as a guide in education is very important for the success of a learning activity that occurs in school. In learning activities, the learning model helps and guides the teacher to apply the stages of teaching. Based on observations on November 12th 2018 in Cluster Moh Hatta, it appears that teachers have not used a varied learning model so that they continue to use the same learning model, namely cooperative learning model without using learning stages. It is seen that students have not been able to share tasks with other group members so that there are still students who want to stand out on their own and some students just stay quiet. In addition, students also seemed less enthusiastic about participating in learning activities so that new innovations were needed in the form of varied learning models.

One model that can be used by teachers is the cooperative learning model. The cooperative learning model has several types of learning models, one of which is the type Two Stay Two Stray (TS-TS).This learning model has a concept of 2 stay, 2 stray, with this learning model students are able to be responsible for their respective tasks, foster students' confidence and exercise the ability of students to express their opinions. The use of the Two Stay Two Stray type cooperative model can also make students able to complete more tasks because the task can be divided. This type was developed by Spencer Kagan in Huda (2013: 207), this model can be used on all subjects and for all age levels of students. This model aims to enable students to work together, be responsible, help each other solve problems, and encourage each other to excel.

Students who are able to cooperate with other people or are able to interact well, will be easy doing a group learning or cooperative learning. Most students who are easy to work with and easily communicate with others are supported by high interpersonal intelligence. Students with high interpersonal intelligence allow themselves to be very sensitive to friends, to the suffering of others, and easy to empathize. Interpersonal intelligence is related to the ability of students to establish good cooperation with other students, in other words interpersonal intelligence aims to develop social skills. This is in line with the statement of Jannah, et al. (2018: 183), interpersonal intelligence is the ability to understand and read other people's ideas. In addition, people who are intelligent interpersonal are skilled in conducting conflict resolution and mediating (mediators) for people involved in the conflict around them.

In the learning process at the elementary school, students are taught a number of material content including mathematics. Mathematics subject is one of the disciplines that can improve the ability to think and argue, contribute to solving problems everyday and in the world of work. However, in reality the mastery of mathematics is a big problem. This can be seen from the results of observations on November 5, 2018 at the South Denpasar UPT. Through the results of the National Examination (UN) mathematics subjects of class VI students in Bali, especially South Denpasar, they are still relatively low with an average score of 65.66 which is classified as C criteria, where the lowest score of students is 3.3.

Based on the problems revealed, a study was conducted entitled "The Effectiveness of the Cooperative Learning Model Type Two Stay Two Stray Reviewed from Interpersonal Intelligence Against Mathematical Knowledge Competencies on Students Grade IV at State Elementary School of Cluster Moh Hatta 2018/2019 Academic Year."

Thepurpose of this study are: 1) To find out there are significant differences in mathematics knowledge competencies of students who are taught using the type Two Stay Two Stray cooperative learning model and students who are taught using conventional learning models. 2)To find out there are significant differences in mathematical knowledge competencies of students who have high interpersonal intelligence and students who have low interpersonal intelligence on the competency of mathematical knowledge. 3) To determine the interaction of type Two Stay Two Stray cooperative learning model and interpersonal intelligence on fourth grade mathematics knowledge competencies at State Elementary School of Cluster Moh Hatta 2018/2019 Academic Year.

2. Methods

This research was conducted in the fourth grade at State Elementary School of Cluster Moh Hatta in second semester of 2018/2019 academic year. This research was a quasi-experimental with factorial design 2 x 2. The population of this study was grade fourth student of State Elementary School of Cluster Moh Hatta 2018/2019 with the number of students 244.

Table 1. Population Composition of Grade IV Students of State Elementary School Cluster Moh Hatta 2018/2019 Academic Year South Denpasar Sub-District

Number	Name of School	Grade	Number of Students
1	SDN 1 Panjer	IV	40
2	SDN 2 Panjer	IV	39
3	SDN 3 Panjer	IV	40
4	SDN 4 Panjer	IV	43
5	SDN 6 Panjer	IV A	41
		IV B	41
Total		6	244

After knowing the population, the next step is to determine the research sample. The sampling technique used in this research is Non-Probability Sampling, namely purposive sampling. Based on certain considerations and school policies, this research only conducted in 4 classes from 3 schools.

So, the class used as the research sample is a class from a school that provides access to conduct research. To select the experimental class and the control class randomly. To select the experimental class and the control class randomly. State elementary schools that were selected as the control group were grade IV of State Elementary School Number 4 Panjer, amounting to 43 students and state elementary schools selected as the experimental group were grade IV of State Elementary School Number IV B Panjer, amounting to 41 students. Data were collected using test methods namely ordinary MCQs and non-test methods namely questionnaire. In the experimental group and the control group were given a questionnaire of interpersonal intelligence and pretest , followed by treatment as much as 6 meetings, then given a posttest.

Data from questionnaires analyzed to determine the scores which were then categorized as groups of students with high interpersonal intelligence and groups of students with low interpersonal intelligence using the median limit . Before the process of categorizing interpersonal intelligence 3 samples with too low a range of scores was not analyzed so that high interpersonal intelligence in the control group and the experimental group was equivalent , low interpersonal intelligence in the control group and the experimental group equivalent, as well as high and low interpersonal intelligence in each group is different. Meanwhile, in the experimental group 2 students with scores of interpersonal intelligence who were at the median limit were omitted. The competency data on mathematics knowledge of the control group and the experimental group were measured twice, before and after treatment. Mathematical knowledge competency data before getting treatment (pretest) is obtained through prerequisite ability tests for statistical material in the form of ordinary multiple choice tests totaling 25 items that have been validated and mathematical knowledge competency data after getting treatment (posttest) obtained through tests of comprehension skills for statistical material in the form of regular multiple choice tests, there are 25 validated questions . Next is to test the hypothesis by analyzing Gain Score data obtained from the results of the pretest and posttest using 2-lane variance analysis. To be able to use the 2-lane variance analysis technique, it is necessary to analyze the prerequisites that must be met, namely normality test and homogeneity test . The normality test was carried out by the Kolmogorov-Smirnov test , while the homogeneity test was carried out by the Bartlett test .

After testing the hypothesis, to find out how much influence the independent variable has on the dependent variable on the sample. In this study the effectiveness of the treatment was calculated using partial eta square.

3. Result and Discussion

The score data of the results of interpersonal intelligence of the control group students are presented in figure 01 below.

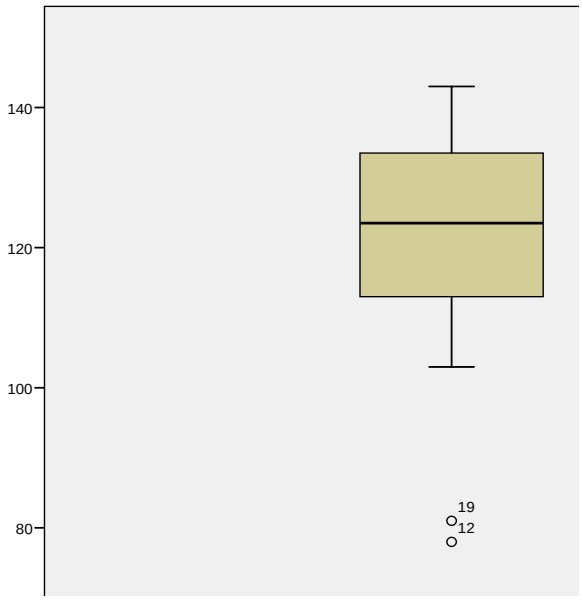


Figure 1. Box Plot Interpersonal Intelligence Graph of the control group

Based on the Box Plot graph, it is known that the median limit of interpersonal intelligence of the control group students is 123.5. So, students who are categorized as groups with high interpersonal intelligence are students with interpersonal intelligence scores that are greater than 123.5. Meanwhile, students who are categorized as groups with low interpersonal intelligence are students with interpersonal intelligence scores that are smaller than 123.5. The maximum value of interpersonal intelligence of the control group students is 143 and the minimum value of interpersonal intelligence of the control group students is 78.

The following data distribution of interpersonal intelligence presented in the Graph of Steam and Leaf.

```
Kecerdasan Interpersonal Stem-and-Leaf Plot

Frequency    Stem &  Leaf

2.00 Extremes    (=<81)
2.00       10 .  33
3.00       10 .  569
6.00       11 .  223334
4.00       11 .  5558
4.00       12 .  0234
4.00       12 .  5566
6.00       13 .  001134
6.00       13 .  567789
3.00       14 .  223

Stem width:     10.00
Each leaf:       1 case(s)
```

Figure 2. Graph of Steam and Leaf Interpersonal Intelligence Control Group

From figure 02, It can be seen the amount of extreme data that is ≤ 81 as much as 2 data, the highest data is 143, the lowest data is 103, and the data that appears the most is data with a range of scores 112-114 as many as 6 data, a range of scores 130-134 as much as 6 data, and a range of scores 135-139 as many as 6 data.

Score data on the results of interpersonal intelligence of control group students are presented in the following figure 03 .

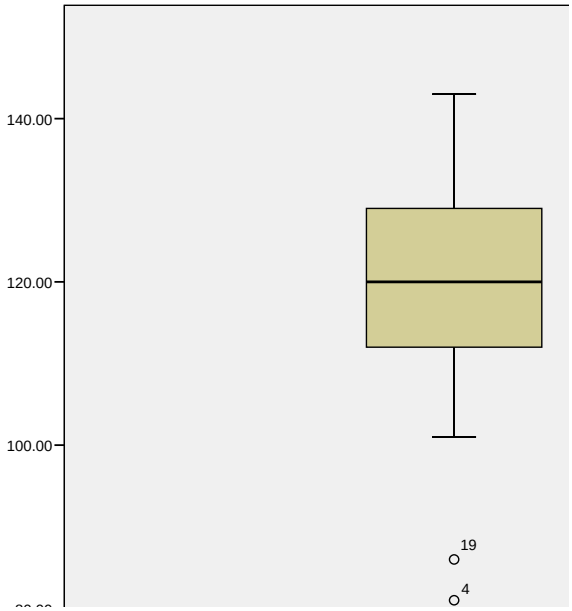


Figure 3. Box Plot Interpersonal Intelligence Graph Experimental Class

Based on Box Plot graph, it is known that the median limit of interpersonal intelligence of control group students is 120. Thus, students categorized as groups with high interpersonal intelligence are students with interpersonal intelligence scores greater than 120. Meanwhile, students are categorized as groups with low interpersonal intelligence are students with interpersonal intelligence score less than 120. the maximum value of intelligence inte rpersonal experimental group of students is 143 and the minimum value of intelligence inte rpersonal experimental group of students is 81. The following data distribution of interpersonal intelligence presented in the Graph of Steam and Leaf.

```
Kecerdasan Interpersonal Stem-and-
Leaf Plot

Frequency    Stem &  Leaf

1.00 Extremes    (=<81)
1.00       8 .  6
        .00            9 .
7.00           10 .  1238889
11.00       11 .  12244566679
11.00       12 .  44578888999
7.00            13 .  0133449
1.00            14 .  3

Stem width:     10.00
Each leaf:       1 case(s)
```

Figure 4. Graph of *Steam and Leaf* Interpersonal Intelligence Experimental Group

From figure 04, we know the amount of extreme data, namely ≤ 81 as much as 1 data, the highest data is 143, the lowest data is 86, and the data that appears the most is data with a range of scores 111-119 as many as 11 data, and a range of scores 124-129 as 11 data.

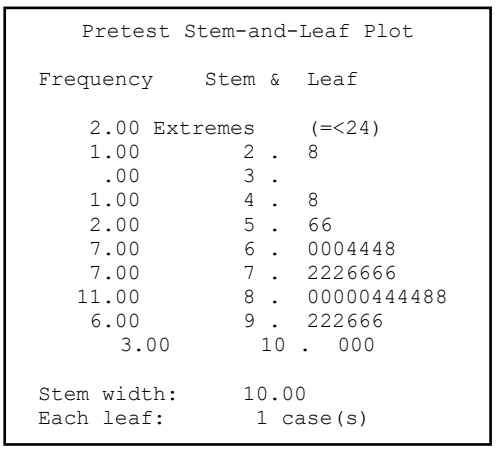
After categorizing high interpersonal intelligence and low interpersonal intelligence, a group equality test was then carried out . To determine the equality of interpersonal intelligence of the control group students and the experimental group, the equality test was carried out using the Independent Test T-Test of the following two samples . The results of the Independent Test T-Test Two Samples are presented in table 02 below.

Table 02. Data on Equality Test of Interpersonal Intelligence with Two Sample Independent T-test

No.	Category	t_{count}	t_{table}	Decision	Information
1.	High interpersonal intelligence in the control group and high interpersonal intelligence of the experimental group	1,599	2,026	H_0 Accepted	There was no difference between the high interpersonal intelligence of the control group and the high interpersonal intelligence of the experimental group
2.	Low interpersonal intelligence in the control group and low interpersonal intelligence in the experimental group	0,312	2,024	H_0 Accepted	There was no difference between the low interpersonal intelligence of the control group and the low interpersonal intelligence of the experimental group
3	High interpersonal intelligence in the control group and low interpersonal intelligence of the control group	7,834	2,024	H_0 Rijected	There is a difference between the high interpersonal intelligence of the control group and the low interpersonal intelligence of the control group
4	High interpersonal intelligence in the experimental group and high interpersonal intelligence of the experimental group	8,591	2,026	H_0 Rijected	There is a difference between the high interpersonal intelligence of the experimental group and the high interpersonal intelligence of the experimental group

Based on Table 2 it can be concluded that there is no difference in high interpersonal intelligence in the control group with high interpersonal intelligence in the experimental group. There was no difference in low interpersonal intelligence in the control group with low interpersonal intelligence in the experimental group . There are differences in high interpersonal intelligence and low interpersonal intelligence in the control group. There are differences in high interpersonal intelligence and low interpersonal intelligence in the experimental group. Then the pretest and posttest data were analyzed to get the Gain Score.

Based on the results of the prerequisite ability tests for statistical material obtained pretest control group data are presented in the steam and leaf graph as shown in the following figure .



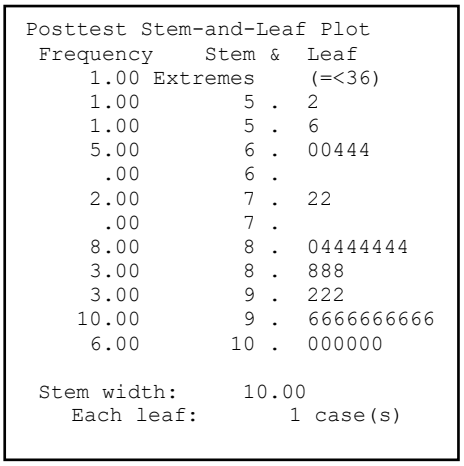
```
    Pretest Stem-and-Leaf Plot

 Frequency    Stem &  Leaf

     2.00 Extremes    (=<24)
     1.00         2 .  8
      .00         3 .
     1.00         4 .  8
     2.00         5 .  66
     7.00         6 .  0004448
     7.00         7 .  2226666
    11.00         8 .  00000444488
     6.00         9 .  222666
        3.00       10 .  000

 Stem width:     10.00
 Each leaf:       1 case(s)
```

(Source: Primary data collected directly by researchers)

Figure 5. Graph of Pretest Control and Steam Data Leaf Groups

Based on graph 03 it is known that the data from the pretest control group with the number of extremes data are ≤ 24 as many as 2 data. The minimum value of m is 24 as many as 2 data, the maximum value is 100 as much as 3 data and the highest value is 80-88 by 11 data. In section 4.1.3.2, we will discuss data on the results of the control group's posttest .

Based on the results of tests on the understanding of statistical material obtained posttest data of the control group are presented in the graph of steam and leaf as shown in figure 06



```
Posttest Stem-and-Leaf Plot
 Frequency    Stem &  Leaf
     1.00 Extremes    (=<36)
     1.00         5 .  2
     1.00         5 .  6
     5.00         6 .  00444
      .00         6 .
     2.00         7 .  22
      .00         7 .
     8.00         8 .  04444444
     3.00         8 .  888
     3.00         9 .  222
    10.00         9 .  6666666666
     6.00        10 .  000000

 Stem width:     10.00
   Each leaf:       1 case(s)
```

(Source: Primary data collected directly by researchers)

Figure 6. Graph of Posttest Control and Steam Data Leaf Groups

Based on graph 06, it is known that the posttest results of the students were taught by conventional learning models with the number of extremes data, namely ≤ 36 as many as 1 data. Value minimum which is 36 in 1 data, the maximum value of 100 as much as 6 data and the highest value that is 96 by 10 data.

Based on the results of the prerequisite ability test for statistical material obtained pretest data of the experimental group are presented in the steam and leaf graph as in Figure 07.

```
Pretest Stem-and-Leaf Plot

 Frequency    Stem &  Leaf

     4.00        2 .  0488
     5.00        3 .  22226
     3.00        4 .  444
     3.00        5 .  266
     8.00        6 .  00044888
     6.00        7 .  222266
     4.00        8 .  0448
     4.00        9 .  2266
     2.00       10 .  00

 Stem width:     10.00
 Each leaf:       1 case(s)
```

(Source: Primary data collected directly by researchers)

Figure 7. Graph of Pretest Steam and Leaf Data Experimental Groups

Based on graph 07, it is known that the data from the pretest of the experimental group with the amount of minimul value data are 20 data 1, the maximum value is 100 as much as 2 data and the highest value range is 60-68 as much as 8 data.

Based on the results of tests on the understanding of statistical material, the posttest data of the experimental group were obtained in the steam and leaf graph as shown in Figure 08

```
Posttest Stem-and-Leaf Plot

 Frequency    Stem &  Leaf

     1.00        4 .  0
     2.00        5 .  26
     7.00        6 .  0004888
     4.00        7 .  2222
    11.00        8 .  00044888888
     5.00        9 .  22666
     9.00       10 .  000000000

 Stem width:     10.00
 Each leaf:       1 case(s)
```

(Source: Primary data collected directly by researchers)

Figure 8. Graph of *Steam and Leaf Posttest* Data of Experimental Groups

Based on the graph 08 known data from the experimental group posttest Rated minimu m at 40 as much as 1 data, the maximum value of 100 as many as 9 data and the range of the highest value is 80-88 as many as 11 data.

After obtaining Gain Score data , the data distribution normality test and variance homogeneity test were carried out in all four groups. Results u ji normality of the data distribution Gain Scorepresented in Table 3 below.

Table 3. Normality of Gain Score Data Distribution

No.	Group	Maximum Value $\lvert F_T - F_S \rvert$	Value of the Kolmogorov-Smirnov Table	Information
1	The Control group of students with high interpersonal intelligence	0,256	0,304	Normal distribution
2	The control group of students with low interpersonal intelligence	0,236	0,304	Normal distribution
3	The experimental group of students with high interpersonal intelligence	0,206	0,312	Normal distribution
4	The experimental group of students with low interpersonal intelligence	0,198	0,304	Normal distribution

The testing criteria is when the maximum value $|F_T - F_S|$ ≤ value of Kolmogorov-Smirnov table, the data is normally distributed. Otherwise if the maximum value $|F_T - F_S|$> > the value of the Kolmogorov-Smirnov table, the data is not normally distributed.

The homogeneity test was carried out to show that the results obtained from the 2 Path Anava test really - really comes from the difference between groups was not caused by differences in thegroup. To test the homogeneity of variance in the four groups, the Bartlett test is used in the following table 04.

Table 4. Homogeneity Test of Four Group Variants

X^2_{count} Value	X^2_{table} Value	Information
1,738	7,815	HOMOGEN

From the calculation results obtained F $_{count}$ =1 ,738 and F $_{table}$ = 7.815 . With a significance level of 5% (α = 0.05) with degrees of freedom 4-1 = 3 . Then value x^2_{count} = 1,738 < Value x^2_{table}=7.815 it was concluded that the data of the two groups had a homogeneous variance .

Data that has been tested for normality and homogeneity are then carried out statistical tests with 2-way variance analysis. The hypothesis is tested :

1. H $_0$: There was no significant difference in Mathematical knowledge competencies between students who were taught using the Two Stay Two Stray type cooperative learning model and students who were taught using conventional models.
2. H $_0$: There is no significant difference in Mathematical knowledge competencies between students who have high interpersonal intelligence and students who have low interpersonal intelligence .
3. H $_0$: There is no significant interaction between type cooperative learning models *Two Stay Two Stray is* Reviewed from Interpersonal Intelligence Against Mathematical Knowledge Competencies on Students Grade IV in at State Elementary School of Cluster Moh Hatta 2018/2019 Academic Year.

Recapitulation of the results of variance analysis 2 The paths of the research sample groups are presented in the following table 05 .

Table 5. Recapitulation of ANOVA Results 2 Pathways of the Study Sample Group

Source of Variation	Df	Sum of Square	Mean Square	F count	F table (5%)	Information
Between	1	1893,51	1893,51	10,606	3,969	H_0 Rijected
Inter B	1	35,92029	35,92029	0,201	3,969	H_0 Accepted
Interaction A X B	1 x 1	89,62951	89,62951	0,502	3,969	H_0 Accepted
In	75	13390,36	178,5381			

Total	78	15409,42

Based on the results of the analysis listed in the summary table of analysis of the variants of the two lines, conclusions can be drawn as follows.

First , $F_A = 10.606 > F_{table\ (\alpha = 0.05;\ 1;\ 75))} = 3.969$ so that the null hypothesis (H_0) states that there is no significant difference in Mathematical knowledge competencies between groups of students who are taught through cooperative learning models *Two Stay Two Stray* with a group of students taught through conventional learning is rejected. This means that overall there are significant differences in Mathematical knowledge competencies between groups of students who are taught using the type *Two Stay Two Stray* cooperative learning model with groups of students who are taught using conventional learning. In other words, the *Two Stay Two Stray* type cooperative learning model influences the mathematical knowledge competency of the grade IV students of State Elementary School Cluster Moh Hatta. Through average gain score mathematical knowledge competencies in the experimental group , 19.7 and the control group, 9.9, can be seen as a comparison of the effect of the coopertive type *Two Stay Two Stray* learning model that occurred in the experimental group.

From the data on the acquisition of Mathematics knowledge competencies in the experimental group and the control group that the competency of knowledge of students who are taught using theTwo Stay Two Stray type of cooperative learning model is better because of type Two cooperative learning model Stay Two Stray Teachers easily supervise student activities in groups, more tasks that can be done, student learning tendencies become more meaningful, more activity-oriented, it is expected that students will dare to express their opinions, increase student cohesiveness and self-confidence, students' speaking skills can be improved, help increase interest and learning achievement. Whereas, conventional learning models are still fixated on the lecture method which makes students more passive and cannot create a meaningful learning atmosphere.

Second , the second hypothesis tested is $F_B = 0.201 < F_{table\ (\alpha = 0.05;\ 1;\ 75))} = 3.969$ so that the null hypothesis (H_0) states that there is no significant difference in Mathematical knowledge competencies between students who have high interpersonal intelligence and students who have low interpersonal intelligence knowledge competencies Mathematics accepted. The overall mean there are no significant differences Mathematics knowledge competencies students who have high interpersonal intelligence with students who have low interpersonal intelligence. This is because students who are able to solve problems in Mathematics can express their ideas or problem solving non-verbally and individually, so that both students with high and low interpersonal intelligence only need to understand the subject matter to obtain expected mathematical knowledge competencies. Thus interpersonal intelligence has no influence on the knowledge competencies of Mathematics.

Third , $F_{AB} = 0.5\ 0\ 2 > F_{table\ (\alpha = 0.05;\ 1;\ 75))} = 3{,}969$ null hypothesis ($H_{0),}$ which states there is no significant interaction between cooperative learning model Two Stay Two Stray and interpersonal intelligence to competence mathematical knowledge state elementary school grade IV cluster Moh. Hatta accepted. This is seen because the students who are taught by the cooperative type Two Stay Two Stray model are higher than the students who are taught using conventional learning both in high and low interpersonal intelligence. This is because students who are able to solve problems in mathematics can express their ideas or problem solving non-verbally and individually, so that both students with high and low interpersonal intelligence only need to understand the subject matter to obtain expected mathematical knowledge competencies .Interpersonal intelligence is the student's ability to interact with others so as to obtain the expected competence Mathematical knowledge is sufficient in are teaching students using cooperative learning model type Two Stay Two Stray.

There is no significant interaction between the *Two Stay Two Stray* type cooperative learning model reviewed and interpersonal intelligence on Mathematical knowledge competencies is graphically visualized in the following figure 09 .

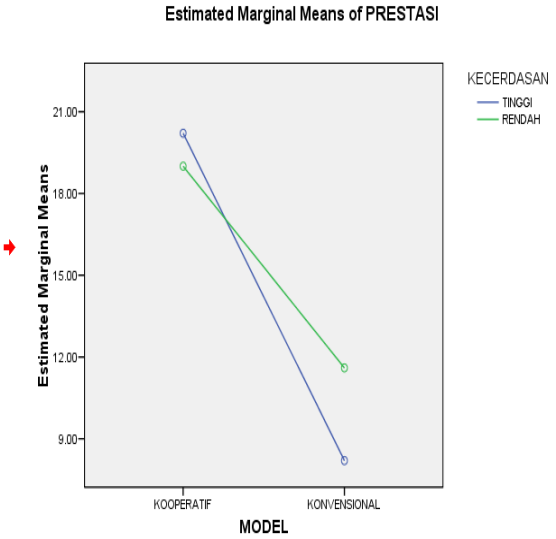


Figure 9. Graph of Interaction Learning Model and Interpersonal Intelligence

Based on Figure 09 the model of learning and interpersonal intelligence does not have a significant interaction so it is not followed by further cell testing.

Based on testing the hypothesis, the results obtained that there is a significant effect of type *Two Stay Two Stray* cooperative learning model towards Mathematics knowledge competencies .

The magnitude of the influence of the model on the knowledge competencies of Mathematics can be determined by calculating the effectiveness.

From the calculation of *Eta Square* , a value is obtained $n^2 = 0{,}122$ So that it can be concluded that the application of the learning model has an influence on the competence of mathematics knowledge by 12.2% .

in accordance with the results of the research and discussion, a number of things can be summarized as follows.

Based on the calculation of $F_{A\ count} = 10.606 > F_{table\ (\alpha = 0.05;\ 1;\ 75))} = 3.969$ so the null hypothesis (H_0) which states there is no significant difference in Mathematical knowledge competencies between groups of students taught through the Two Stay Two Stray type cooperative learning model with groups students who are taught through conventional learning are rejected. This means that overall there are significant differences in Mathematical knowledge competencies between groups of students who are taught using the type Two Stay Two Stray cooperative learning model with groups of students who are taught using conventional learning. Judging from the average Gain Score , it appears that the mathematical knowledge competencies of the group of students are taught through the Two Stay Two Stray type cooperative learning model $A_1 = 19.7 >$ $A_2 = 9.9$ groups of students who are taught using conventional learning models can thus be concluded that the Two Stay Two Stray type cooperative learning model influences students' mathematical knowledge competencies.

Based on the calculation of $F_{B\ count} = 0.201 < F_{table\ (\alpha = 0.05;\ 1;\ 75))} = 3.969$ so that the null hypothesis (H_0) states that there is no significant difference in Mathematical knowledge competencies between students who have high interpersonal intelligence and students who have low interpersonal intelligence knowledge competencies Mathematics accepted. This means that overall there is no significant difference in Mathematical knowledge competencies of students who have high interpersonal intelligence with students who have low interpersonal intelligence. Thus the knowledge competency of Mathematics students who have high interpersonal intelligence is not necessarily better than students who have low interpersonal intelligence .

Based on the calculation of $F_{AB\ count} = 0.502 < F_{table\ (\alpha = 0.05;\ 1;\ 79))} = 3.969$ null hypothesis (H_0) which states that there is no significant interaction between the type Two Stay Two Stray cooperative learning model reviewed from interpersonal intelligence to competence mathematical knowledge state elementary school grade IV cluster Moh. Hatta accepted.

4. Conclussion

Based on the results of the research that has been concluded, there are a number of suggestions presented to various parties as follows.

1) Teacher
   Teachers should be able to add insight into learning innovations so that they are able to apply and develop classroom learning in a more innovative and varied manner so that it can have a positive impact on increasing knowledge competencies. One learning model that can be recommended for teachers in creating varied learning is the Two Stay Two Stray type learning model .The teacher must also enhance his role as a motivator and facilitator.
2) Principals
   Principals should be able to contribute fully in improving quality and optimizing the learning process, so that it has a positive impact on students' knowledge competencies especially in elementary schools.
3) Other researchers
   Based on research findings, it is suggested to researchers that the results of this study be used as a reference to carry out further research or find other innovative learning activities that are meaningful to students.

Reference

Huda, Miftahul. 2013. *Model-model Pengajaran dan Pembelajaran : Isu-isu Metodis dan Paradigmatis.* Yogyakarta : Pustaka Pelajar.

Isjoni. 2013. *Cooperative Learning : Efektifitas Pembelajaran Kelompok.* Bandung : Alfabeta.

Olejnik, Stephan. 2003. "Generalized Eta and Omega Squared Statistics: Measures of Effect Size for Some Common Research Designs". The American Psychological Association, Inc, Volume 8, Nomor 4 (hlm 435). (diakses pada tanggal 20 Januari).

Riduwan. 2008. *Metode dan Teknik Menyusun Tesis.* Bandung : Alfabeta.

Safaria. 2005. *Metode Pengembangan Kecerdasan Interpersonal Anak.* Yogyakarta : Amara Books.

Suprijono, Agus. 2015. *Cooperative Learning : Teori & Aplikasi Paikem.* Yogyakarta : Pustaka Pelajar.

Susanto, Ahmad. 2013. *Teori Belajar & Pembelajaran di Sekolah Dasar.* Jakarta : Prenadamedia Group.

Tuckman, B.W. 1999. *Conducting Educational Research.* New York : Harcourt Brace Jovanovich.