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The effectiveness of using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model in improving reading comprehension (the case of seventh graders of SMP Negeri 3 Welahan Jepara)

Hasan Anwar¹, Arso Setyaji², Ngasbun Egar³

^{1,2,3,} English Language Education, Postgraduate Program of PGRI University of Semarang.

Abstrak:

The objective of this research is to find out whether there is any significant difference of using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model to improve reading comprehension between high and low motivated students. This study uses a quantitative research type that aims to test the hypothesis of the data that has been collected in accordance with previous theories and concepts. The sample of this study was students of class VII A of SMP Negeri 3 Welahan Jepara which became the experimental class with 32 students and Class VII D as the control class with 32 students. The analysis of this research includes analysis of normality test, homogeneity test, hypothesis test including t-test and Effectiveness Test: Effect Size Calculators (Cohen's d). Based on the research results, the following conclusions can be drawn: (1) The reading comprehension ability of the students taught using the CCL with Quantum Teaching Model: students in the experimental group in the pre-test averaged 64.38 included in the Good category, namely in the interval 61-80 and after the Implementation of the Learning Model using the CCL with Quantum Teaching Model in the post-test averaged 84.38 included in the Good category, namely in the interval 61-80. Based on the t-test, the result of t count 13.504 > t table 2.0395 with a positive direction proves that the reading comprehension ability score of the experimental group is significantly different before and after learning with CCL with Quantum Teaching Model, (2) The reading comprehension ability of the students taught using CCL without quantum teaching model of control group students in the pre-test averaged 65.00 and in the post-test averaged 74.88. There was an increase in score of 9.88. Based on the t-test, the result of t count 9.296 > t table 2.0395 with a positive direction proves that the reading comprehension ability score of the control group is significantly different before and after learning without CCL without Quantum Teaching Model, (3) There is significant different of the reading comprehension ability between the students taught using is using CCL with Quantum Teaching Model and those taught using CCLwithout quantum teaching model: (1) Based on the t-test, the calculated t result is 58.360 > t table 1.999 with a positive direction proving that the experimental group's reading comprehension ability score is significantly different from the control group; (2) The Cohen d test result is 2.955 and the effect-size r is 0.828, which is considered a relatively large effect size. (0.8 + is a large effect). Based on these calculations, it can be concluded that learning activities using CCL with Quantum Teaching Model on the reading comprehension ability of students at SMP Negeri 3 Welahan Jepara have a relatively large effectiveness in improving the reading comprehension ability.

1. INTRODUCTION

Reading is one of the basic skills that the students should master them at the end of their learning process in educational levels. Reading is an essential part in learning language because reading provides multiple opportunities for students to study language, such as: vocabulary, grammar, punctuation, and the way to construct sentence, paragraph, and texts. Paulston and Bruder (2017: 157) say that reading is the most important skill of all for most students of English throughout the world, it is a skill that has been neglected in the audio-lingual tradition of language teaching. By reading we can communicate with other people through written because reading is an interactive process between language and mind. As interactive process, successfull reading will be influenced by reading strategy.

Reading is the root of all aspects of education. However, in reality a student's reading ability is still not good, because their skills in reading activities are still very poor. Indonesia's reading ability can be seen from: 1) Based on the results of the 2018 PISA study released by the OECD, it shows that Indonesian students' reading ability achieved an average score of 371, with an average OECD score of 487. This shows that Indonesia's reading ability is classified as lower than OECD standards (OECD, 2019). UNESCO said Indonesia is second from the bottom in terms of world literacy, meaning interest in reading is very low. 2) According to UNESCO data, Indonesian people's interest in reading is very worrying, only 0.001%. This means that out of 1,000 Indonesians, only 1 person reads diligently. This makes people always pay attention to the results rather than looking at the entire process. 3) Progress in International Reading Literacy Study (PIRLS) and Early Grade Reading Assessment (EGRA) (Mullis & Martin, 2017; which apparently shows data that is not much different from PISA regarding the reading ability of Indonesian children, far from expectations. 4) data from the World's Most Literate Nations conducted by Central Connecticut State University, United States, which was released in early 2017, where Indonesia ranked 60th out of 61 survey participating countries in terms of literacy ability. 5) The results of the Indonesia National Assessment Program in 2016 conducted by the Education Research Center (Puspendik) of the Ministry of Education & Culture itself revealed data that the national average distribution of literacy in students' reading ability in Indonesia was 46.83% in the Poor category, only 6.06% are in the Good category, and 47.11 are in the Fair category. 6) 60 million Indonesians have gadgets, or fifth in the world with the most gadgets. 7) The digital marketing research institute Emarketer estimates that in 2018 the number of active smartphone users in Indonesia will be more than 100 million people. With such a large number, Indonesia will become the country with the fourth largest active smartphone users in the world after China, India and America. Ironically, even though interest in reading books is low, wearesocial data as of January 2017 shows that Indonesians can stare at gadget screens for approximately 9 hours a day. It is not surprising that in terms of talkativeness on social media, Indonesians are in 5th place in the world (Devega, 2017).

Likewise, the condition of students at SMP Negeri 3 Welahan Jepara, based on the results of 25 students (30 July 2024), the quality of students' reading comprehension is still low. The average score was only 55. And only 4 students achieved a score of 70. Referring to the problems above, efforts need to be made to improve students' reading skills so that student learning outcomes can improve. For this reason, there is a need for learning models that are seen to be able to help teachers in the teaching and learning process. A learning model is a pattern used as a guide in planning learning in groups or tutorials to improve student achievement, results and learning motivation (Suprijono, 2021: 46).

Reading problems, there are several solutions such as: role play, picture cued elicitation, and so on. Actually, the teacher had those learning strategies in improving reading but there are no significant differences of the students result in the end of the exam. In this study, I use Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model as one of cooperative learning strategies to be applied in reading class.

This research problem is limited to the discourse of collaborative learning with a focus on Collaborative-Cooperative Learning (CCL) and the Quantum Learning Model. So the scope is based on the title; the effectiveness of using Collaborative-Cooperative Learning (CCL) with the Quantum Learning Model to improve reading comprehension for students with high and low motivation (Case of 7th grade students of Welahan Jepara State Junior High School).

The objective of this research is to find out whether there is any significant difference of using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model to improve reading comprehension.

2. RESEARCH METHOD

Research Approach and Type

This study uses a quantitative research type that aims to test the hypothesis of the data that has been collected in accordance with previous theories and concepts. Quantitative research is a study conducted using a deductive inductive approach that starts from a theoretical framework, expert ideas, or researcher understanding based on their experience which is then developed into problems and their solutions that are proposed to obtain justification in the form of empirical data support in the field. The Experimental Method is a quantitative research method used to determine the effect of independent variables on dependent variables under controlled conditions (Sugiyono 2016:111). This type of research is Quasi Experimental Design research. The form of quasi-experimental design used is Nonequivalent Control Group Design.

The researcher used *One-group pretest-posttest design* of experimental research. The objectives of the research were to find out whether or not there is a significant different of the reading comprehension a being of the student touch using the collaborative-cooperative Learning(CCL) with quantum teaching Model and the reading comprehension a being of the student touch using collaborative learning (CCL) without quantum teaching model.

Population, Sample and Sampling

According to Sugiyono (2016: 15), population is a generalization area consisting of objects/subjects that have certain quantities and characteristics determined by researchers to be studied and conclusions drawn. The population in this study were students of class VII of SMP Negeri 3 Welahan Jepara, consisting of 7 classes, each with 32 students.

The sample of this study was students of class VII A of SMP Negeri 3 Welahan Jepara which became the experimental class with 32 students and Class VII D as the control class with 32 students. In this school, class of 7A was the best class in this grade who the students get good score in each lesson, and 7D was the average class. In this study, the researcher used a simple random sampling technique, namely a sample that was selected randomly without considering the strata in the population. In this study, 2 sample classes were taken from the existing class population.

Method of Data Collection

The data collection procedure of this research involves several steps: (1) The first step, the researcher prepares a test and then the researcher gives the test to measure students' abilities before treatment (pre-test), (2) The second step, the researcher gives treatment to the experimental group, (3) The third step, the researcher gives a test to measure students' abilities after treatment (post-test), (4) The fourth step, the researcher analyzes the data, (5) And the last step, the researcher calculates the data.

Method of Data Analysis

a. Hypothesis Testing

1) Study Completeness Test

To test the completeness of the Reading Comprehension Learning test results for the experimental group and control group, the SPSS Version 25.0 for Windows program was used. The hypotheses used are as follows: H0: π = 75% (the percentage of students who get a score \geq 75 is the same as 75%) H1: $\pi \geq$ 75% (the percentage of students who get a score \geq 75 is more than 75%)

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To determine learning completeness, the following guidelines are used (Gunawan, 2015: 122):

- a. Determine the test significance level ($\alpha = 5\% = 0.05$)
- b. Compare the significance level obtained by Sig. (2-tailed)
- c. If the significance obtained is > 0.05 then H0 is accepted
- d. If the significance obtained is <0.05 then H0 is rejected

As previously explained, learning with Quantum Teaching is said to be effective if it meets the success indicators as previously mentioned, namely experimental class classical learning completeness of at least 75%.

2) Paired T-test

T-Test is often called Student's t-test in the name of its founder "Student". T -test is used to compare two different set of values. It is generally performed on a small set of data. T-test is generally applied to normal distribution which has a small set of values. This test compares the mean of two samples. T-test uses means and standard deviations of two samples to make a comparison.

Paired t-test is one of the hypothesis testing methods where the data used are not free (paired). The most common characteristics found in paired cases are that one individual (research object) receives 2 different treatments. Even though using the same individual, researchers still obtain 2 types of sample data, namely data from the first treatment and data from the second treatment.

3) Effectiveness Test: Effect Size Calculators (Cohen's d)

Effective contribution explains the percentage of donations that given by treatment in improving scores in the experimental group. Effective contribution shows how far the effectiveness of the treatment given. The tools used effect size calculators (Cohen's d). Effect sizes are computed using the methods outlined in the paper Olejnik & Algina (2003). If comparing two populations, Cohen's *d* can be used to compute the effect size of the difference between the two population means.

3. RESEARCH RESULTS AND DISCUSSION

A. Research Results

1. Reading Comprehension Ability of the Students Taught Using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model

Based on the results of data analysis, it was found that the reading comprehension ability of the experimental group children in the pre-test averaged 64.38 included in the Good category, namely in the interval 61–80. At after the Implementation of the Learning Model using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model in the post-test averaged 84.38. There was an increase in score of 20.00.

2. The reading comprehension ability of the students taught using the Collaborative-Cooperative Learning (CCL) without Quantum Teaching Model

Based on the results of data analysis, it was found that the reading comprehension ability of students in the control group in the pre-test averaged 64.88 and in the post-test averaged 74.88, included in the Good category, namely in the interval 61–80. There was an increase in score of 9.88.

3. Different of The Reading Comprehension Ability Between the Students Taught Using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model and Those Taught Using Collaborative Learning (CCL) Without Quantum Teaching Model

a. Different of the reading comprehension ability score of the experimental group is significantly different before and after learning with Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model The t-test was used to determine the differences in the reading comprehension ability of students taught using the Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model. The results are as follows.

Table 1 Results of the t-test for the experimental group

		t	df	Sig. (2-tailed)
Pair Ex	perimental group post test score - pre test score	13,504	31	,000
1				

Based on the t-test, the result of t count 13.504 > t table 2.0395 (df 31, two tail) and the level of significance of t count 0.000 < 0.05 with a positive direction proves that the reading comprehension ability score of the experimental group is significantly different before and after learning with Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model.

b. Different of the reading comprehension ability score of the experimental group is significantly different before and after learning without Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model The t-test was used to determine the differences in the reading comprehension ability of students taught using the Collaborative-Cooperative Learning (CCL) withoth Quantum Teaching Model. The results are as follows.



Based on the t-test, the result of t count 9.296 > t table 2.0395 (df 31, two tail) and the level of significance of t count 0.000 < 0.05 with a positive direction proves that the reading comprehension ability score of the control group is significantly different before and after learning without Collaborative-Cooperative Learning (CCL) without Quantum Teaching Model.

c. Different of the reading comprehension ability between the students taught using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model and those taught using collaborative learning (CCL) without quantum teaching model

The t-test was used to determine the differences in the reading comprehension ability of students taught using the Collaborative-Cooperative Learning (CCL) with the Quantum Teaching Model with the reading comprehension ability of students taught using the Collaborative-Cooperative Learning (CCL) without the Quantum Teaching Model. The results are as follows.

Table 3 Results of the t-test for the Score of Post-tes

Independent Samples Test

		F		Sig.	t	Df	Sig. (2-tailed)
Score	ofEqual	variances2,16	5	,146	5,527	62	,000
Post-test	assume	ed					
	Equal	variances			5,527	58,360	,000
	not ass	sumed					

Based on the t-test, the result of t count 58.360 > t table 1.999 (df 62, two tail) and the level of significance of t count 0.000 < 0.05 with a positive direction proves that there is significant different of the reading comprehension ability between the students taught using collaborative-cooperative Learning (CCL) with quantum teaching Model and those toughth using collaborative learning (CCL) without quantum teaching model.

d. Effectivity of the reading comprehension ability between the students taught using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model and those taught using collaborative learning (CCL)without quantum teaching model

The effectiveness of improving students' reading comprehension ability by comparing the reading comprehension ability test data of the experimental group and the control group. Effective contribution explains the percentage of donations that given by treatment in improving scores in the experimental group. Effective contribution shows how far the effectiveness of the treatment given. The tools used effect size calculators (Cohen's d). Effect sizes are computed using the methods outlined in https://lbecker.uccs.edu/.

The effectiveness test explains the effectiveness of the treatment in improving the reading comprehension scores of the experimental group. Effective contribution shows how far the effectiveness of learning using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model is on the reading comprehension of students (the case of seventh graders of SMP Negeri 3 Welahan Jepara). Effective contribution is called effect size. In this study is to calculate the effectiveness using Cohen-D theory. The tools used are online Cohen d calculators. To compare two populations, Cohen d can be used to calculate the effect size of the difference between two population means. By convention, Cohen d is categorized as follows:

Table 4 Collell's dis categorized		
Koefisien Cohen's d	Interpretation	
0.2 - 0.4	Small effectiveness	
0.5 – 0.7	Medium effectiveness	
0.8 +	Large effectiveness	

Table 4 Cohen's d is categorized

Based on the average of the posttest and pretest scores of the reading comprehension ability of the experimental group, the effectiveness can be calculated by the Cohen_d calculator.

Tabel 4.5 Cohen's d calculation results

The effectiveness of learning using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model

	Group Post-test	Group pre-test
Mean	84,38	64,38
Standar Deviasi	5,955	7,491
Hasil hitung Cohen's d	2,955640	
Ukuran efektifitas r	0,828205	

Results: Cohen's d is 2.955640 and the effect size is 0.828205, which is considered a relatively large effect size. (0.8 + is a large effect). Based on the calculation, it can be concluded that the learning activity using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model on the reading comprehension ability (the case of seventh graders of SMP Negeri 3 Welahan Jepara) has a relatively large effectiveness in improving the reading comprehension ability.

B. Discussion

1. The reading comprehension ability of the students taught using the Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model

The t-test was used to determine the differences in the reading comprehension ability of students taught using the Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model. Based on the t-test, the result of t count 13.504 > t table 2.0395 (df 31, two tail) and the level of significance of t count 0.000 < 0.05 with a positive

direction proves that the reading comprehension ability score of the experimental group is significantly different before and after learning with Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model.

This is in accordance with the research of Astutik et al (2020). The research showed that collaborative creativity models were effective in improving scientific creativity skills. This is also in accordance with the theory of **Center for Education Innovation (2024) that** Cooperative and Collaborative Learning (CCL) essentially provide a structured way of sharing responsibilities for learning in groups. Typically, students work in pairs or small groups of three to four people in which they are expected to interact with each other, sharing ideas and resources, supporting and encouraging each other's learning through peer teaching and, most importantly, holding mutual accountability for achieving learning outcomes. Cooperative and collaborative learning are perhaps best viewed as being at different ends of a continuum where the main differences between them are who has the authority over knowledge and the power over the learning processes; to put it another way, the degree of control given to the learners by the class member. In practical terms, the differences are seen in the answers to such questions as who structures activities, who designates roles, who provides knowledge input, who provides resources, who assesses and who decides what counts as knowledge.

The results of this research also support the theories formulated by Yamin & Ansari, (2018) stated that cooperative learning helps students to improve their thinking skills, ways of collecting information from various sources, giving arguments, and appreciation among each other; academic skills and characters (Rao, Collins, & DiCarlo, 2019), tolerance among students and teachers (Cabrera, Crissman, Bernal, Nora, Terenzini, & Pascarella, 2019), and motivation to find theoretical concepts (Eymur & Geban, 2016). Meanwhile, Resta & Laferrière (2017) emphasize that collaborative learning can be applied in all fields of learning and supported by technology of the global era.

2. The reading comprehension ability of the students taught using collaborative learning (CCL) without quantum teaching model

The t-test was used to determine the differences in the reading comprehension ability of students taught using the Collaborative-Cooperative Learning (CCL) withoth Quantum Teaching Model. Based on the t-test, the result of t count 9.296 > t table 2.0395 (df 31, two tail) and the level of significance of t count 0.000 < 0.05 with a positive direction proves that the reading comprehension ability score of the control group is significantly different before and after learning without Collaborative-Cooperative Learning (CCL) without Quantum Teaching Model.

This is in accordance with the research of Harianto et al (2020) titled "Collaborative-cooperative Learning Model to Improve Theology Students' Characters: Is It Effective?" The results show that (1) the CCL model was found to be able to improve students' characters. Experts' reviews concluded that the CCL syntax could be categorized as having innovative aspects based on the rationality model on the score of 3.29; (2) The CCL model was found to be effective in improving students' characters by the Mann-Whitney test (sig. = .012) and the paired sample t-tes (sig. = .000) showed a significant difference in the mean scores; (3) the CCL model could improve the characters of self-discipline, social discipline, and religious discipline in the theology students in the subject matter class Self Development and could be used for subject matter classes with the same characteristics, be followed-up by research in wider subject-matter contexts, and be integrated with research from other academic fields.

This is also in accordance with the theory that Collaborative learning and cooperative learning are teaching strategies that allow students to interact with each other and work together in order to learn more efficiently. Based on the principle that learning is inherently a social process, these strategies give learners the opportunity to interact with each other, discuss ideas, think and talk together, analyze and solve problems in groups, create and realize common projects, etc. (Prince, 2024: 231).

The superiority of collaborative learning is shown by Barkley, Cross, & Major (2016) in their study to include the following. First on peer influence, students show statistically significant improvement in intellectual and general cognitive skills and experience the process of obtaining character values and selfindependence.

Second, on campus environment, students are more active and involved in their participation in the learning processes. Third, on classroom collaborative learning, students who are in the small groups show higher

academic achievement, better attitudes towards the subject matter, and more persistence in participating in the program. In addition, Springer, Stanne, & Donovan (2019) emphasize the effectiveness of collaboration in improving students' competences in small-group learning.

3. The different of the reading comprehension ability between the students taught using collaborativecooperative Learning (CCL) with quantum teaching Model and those tought using collaborative learning (CCL) without quantum teaching model

The t-test was used to determine the differences in the reading comprehension ability of students taught using the Collaborative-Cooperative Learning (CCL) with the Quantum Teaching Model with the reading comprehension ability of students taught using the Collaborative-Cooperative Learning (CCL) without the Quantum Teaching Model. Based on the t-test, the result of t count 58.360 > t table 1.999 (df 62, two tail) and the level of significance of t count 0.000 < 0.05 with a positive direction proves that there is significant different of the reading comprehension ability between the students taught using collaborative-cooperative Learning (CCL) without teaching Model and those tought using collaborative learning (CCL) without quantum teaching model.

The effectiveness of improving students' reading comprehension ability by comparing the reading comprehension ability test data of the experimental group and the control group. Effective contribution explains the percentage of donations that given by treatment in improving scores in the experimental group. Effective contribution shows how far the effectiveness of the treatment given. The tools used effect size calculators (Cohen's d). Effect sizes are computed using the methods outlined in <u>https://lbecker.uccs.edu/</u>. Results: Cohen's d is 2.955640 and the effect size is 0.828205, which is considered a relatively large effect size. (0.8 + is a large effect). Based on the calculation, it can be concluded that the learning activity using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model on the reading comprehension ability (the case of seventh graders of SMP Negeri 3 Welahan Jepara) has a relatively large effectiveness in improving the reading comprehension ability.

This is in accordance with the research of Maron (2020) titled "Improving The Student Reading Comprehension Through Quantum Teaching Technique at Second Semester Islamic State Institut." The results show that the use of quantum teaching technique could increase the student's reading comprehension. Students who fell into very high and high reading categories increased from 17 students (cycle one) to 21 (cycle two); the number of students who belonged to moderate and low categories also slightly decreased from 14 in cycle one to 12 in cycle two. There was two students who were in the very low reading comprehension category in cycle one, but none was in cycle two. Furthermore, the use of quantum teaching technique has also encouraged students to participate actively during the reading classes. The average level of the student's participation in the reading class process was moderate. In short, the use of quantum teaching technique in reading classes could improve not only the students reading comprehension but also their participate in reading class activity.

This is also in accordance with the theory of DePorter et al, (2019: 4) In general, Quantum Teaching is a learning method and process in the classroom that optimizes the interaction of various elements in students and their learning environment. In this interaction various elements of effective learning are involved (students' enthusiasm and enthusiasm for learning). It is hoped that the results of this interaction can change and improve students' abilities and talents. These students' abilities and talents will ultimately become achievements and learning outcomes that are beneficial for themselves and others. So the various elements that interact are like energy and the student's rapidly increasing competence is symbolized as light resulting from this interaction.

This is in line with the opinion of Kosasih and Sumarna (2018:76) who also stated that Quantum learning is a fun learning model and includes all dynamics that support the success of the learning itself and all relationships, differences, interactions, and aspects that can maximize the momentum for learning. Quantum learning can make learning a fun and useful process. In implementing Quantum learning, teachers must be able to make the learning process an interesting and enjoyable activity for students, optimizing all interactions between teachers and students during the learning process in order to achieve the expected learning goals. Teachers can choose various learning methods as desired, use interesting learning media and in accordance with the material being taught in order to achieve student success in learning.

Quantum learning also empowers all potentials and existing learning environments, so that the learning process is something that is fun and not something that is burdensome. In Quantum learning, environmental factors and student abilities have equally important positions. Leasa and Ernawati (2013:169) stated that Quantum learning is a new perspective that facilitates the student learning process by changing learning that is lively with all the nuances in and around the learning environment situation through interactions that exist around the class. A similar opinion was also expressed by Hamdayana (2018:72) who stated that the Quantum learning model is a learning model that seeks to combine (integrate, synergize, elaborate) the potential factors of humans as learners with the environment (physical and mental) as a learning context. Arranging an optimal learning environment situation both physically and mentally is very much needed to support the success of learning. Thus, students get an effective initial step to organize their learning experience.

Quantum learning can be seen as an ideal learning model to be applied because it allows students to learn optimally. Several research results that have been conducted show that the application of Quantum learning can increase learning motivation, increase scores/values, increase self-confidence, increase self-esteem, and continue the use of skills (Wena, 2019: 167). This shows that the Quantum learning model is one of the right learning models to improve student learning outcomes.

4. CONCLUSION

Based on the research results obtained and their discussion, the following conclusions can be drawn.

1. The reading comprehension ability of the students taught using the Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model: students in the experimental group in the pre-test averaged 64.38 included in the Good category, namely in the interval 61–80 and after the Implementation of the Learning Model using the Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model in the post-test averaged 84.38 included in the Good category, namely in the interval 61–80. There was an increase in score of 20.00. Cohen's d is 2.955640 and the effect size is 0.828205, which is considered a relatively large effect size. (0.8 + is a large effect). Based on the t-test, the result of t count 13.504 > t table 2.0395 (df 31, two tail) and the level of significance of t count 0.000 < 0.05 with a positive direction proves that the reading comprehension ability score of the experimental group is significantly different before and after learning with Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model.

2. The reading comprehension ability of the students taught using collaborative learning (CCL) without quantum teaching model of control group students in the pre-test averaged 65.00 and in the post-test averaged 74.88. There was an increase in score of 9.88. Based on the t-test, the result of t count 9.296 > t table 2.0395 (df 31, two tail) and the level of significance of t count 0.000 < 0.05 with a positive direction proves that the reading comprehension ability score of the control group is significantly different before and after learning without Collaborative-Cooperative Learning (CCL) without Quantum Teaching Model.

3. There is significant different of the reading comprehension ability between the students taught using is using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model and those taught using collaborative learning (CCL)without quantum teaching model: (1) Based on the t-test, the calculated t result is 58.360 > t table 1.999 (df 62, two tail) and the significance level of the calculated t is 0.000 < 0.05 with a positive direction proving that the experimental group's reading comprehension ability score is significantly different from the control group; (2) The Cohen d test result is 2.955 and the effect-size r is 0.828, which is considered a relatively large effect size. (0.8 + is a large effect). Based on these calculations, it can be concluded that learning activities using Collaborative-Cooperative Learning (CCL) with Quantum Teaching Model on the reading comprehension ability of students at SMP Negeri 3 Welahan Jepara have a relatively large effectiveness in improving the reading comprehension ability.

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<u>INFO</u>

Corresponding Author: Hasan Anwar, English Language Education, Postgraduate Program of PGRI University of Semarang.

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