

# The Effectiveness of Cooperative Learning with Structural Make a Match on Academic Achievement and Social Behavior: a case study at SMKN 33 Jakarta

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**Abstract:** this research aims to establish the effectiveness of the application for the Cooperative learning model of Learning (CL) with Structural Make A Match techniques on the academic and social behavior of student learning. This research uses a quasi-experiment method by performing the treatment on group students. The research design used was a pretest-posttest control group design. Data collection is done using posttest and question form. Data analysis for student learning outcomes used Mann-Whitney-test, while an analysis of the friendly behavior of students used descriptive analysis. The results of this research indicate that: 1) the learning outcomes of students in the class who applied the model CL technique Structural Make A Match had. Average score increased (delta pre-test and post-test) 7.80, while the class is applied to the method conventional 4.75. Students who stated that the learning model CL technique Structural Make A Match could improve communal behaviors of students at 79,2%, students who are still hesitant with this learning model as much as 11,6% and 9,2% of students stated that this learning model cannot increase significantly the social behavior of students. The implication of the application of this model is the improved aspects of cognitive, affective, and psychomotor students.

Keywords: effectiveness, Cooperative Learning, Structural Make A Match, social behavior, the results of the study

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## I. INTRODUCTION

Education is a system where the entire educational components are interlinked in integrated and functional ties regularly to achieve the goals of national education. Vocational education is one of the kind and level of education that is part of the national education system. Vocational education is a kind of education that have particular characteristics, which is oriented to the preparation of learners for work in a specific field. For that reason, of vocational education cannot be detached from the shake with the world of work, because the workforce is considered as a chain that cannot be severed from a series of the vocational education system. Vocational education was built and developed with attention to the needs and situation of the workforce to meet the demands of a growing market. Vocational education can't shut down the development is happening in the world of work, including the development and utilization of technology and its impact on the demands the skills of graduates. (Ivan, 2008).

Vocational secondary school (SMK) is part of the national education system, where CMS is the

intermediate level of education aimed at preparing the participants of his protégé to enter employment. Several factors can be identified as an attempt to keep the sustainability vocational education within the framework of the preparation of graduates who comply with the demands of the world of work, including the preparation of HUMAN RESOURCES, curriculum relevance, adjustments and infrastructure management, vocational education, including the response to the demands of the job skills. The consequences of these goals demand that the quality of the graduates of vocational high schools (CMS) can be absorbed by the world of work/world industry, and this has become a benchmark of the success of the process of vocational education. According to Sisdiknas of the ACT No. 2 of 2003 learning is defined as the interaction between educators, learners, and learning resources, in particular learning environment because it's the success of the educational process in schools is determined by many factors, not only determined by the teachers and students but also in the selection of appropriate learning model with the subjects will be taught.

One of the learning models that can accommodate the role of a teacher as mentioned above is a model of

learning cooperative (cooperative learning). Cooperative learning arises due to developments in existing learning systems. Cooperative learning, individual learning system where teachers continue to provide information (teacher as a Center) and students just listen. Cooperative learning is learning that focuses on the use of small groups of students to work together in maximizing learning conditions to achieve learning objectives. This model places emphasis on discussion or cooperation that facilitates students to exchange ideas or ideas in the group so that in the process will make students more active in learning activities. This makes cooperative learning students can cooperate and the presence of active partisan of students. Teachers as facilitators and tutors will direct any learners towards knowledge true and correct. Cooperative learning model has many techniques in its application, namely STAD (Student Teams Achievement Divisions), the technique of Jigsaw, G (Group Investigation), structure technic, Think-Pair-Share, Numbered Heads Together, Bamboo Dancing, The Power of Two, and the Listening Team. In general, all cooperative learning techniques in this emphasis on the cooperation of students in learning, both in presenting an idea or idea or in completing tasks in hopes of learning atmosphere is created that is more active, effective, and the achievement of learning objectives.

The purpose of this research is (1) improving the social behavior of students; (2) enhance student learning outcomes in particular on subjects of basic Food; (3) producing devices and the learning-type structural syntax to make a match. According to Winkel (in Anthony, 2010), learning is the process in which individuals interact with their environment to get a change in his behavior. Learning is a mental or psychic activity which takes place in the active interaction with the environment produces changes in the knowledge skills and attitudes. The change is obtained by effort (not because of the maturity of) living in a relatively long time and is the result of experience. Zainul and Nasoetion (1996 in Anthony 2010) teaching process is a conscious activity is to make students learn. In the context of the learning outcomes of students thus in accordance with the purpose of teaching (ends are being attained). The purpose of teaching to become potential learning outcomes will be achieved by a child through their learning activities.

Therefore, the test results of learning as a tool to measure the results of the study should measure what students are understood in the process of teaching and learning in accordance with the aim stated in the instructional curriculum. Sudjana (1996, in Anthony 2010) explains the purpose of teaching is the expected capabilities possessed by the students after completing

their learning experience. The results of a study that measured reflect the goal of teaching. Gronlund (1988 in Purwanto, 2010) teaching purpose is the purpose of describing the knowledge skills and attitudes that must be possessed by students as a result of teaching outcomes stated in the form of behavior (behavior) that can be observed and measured. The results of the study are often used as a measure to find out how far a person mastering the material already taught. To evaluate the results of the study required a series of measurements using a good evaluation tool and qualified. Learning results are domain behavior-behaviors that are converted in the process of education. That behavior is divided into three domains: cognitive, affective and psychomotor.

According to Soedjadi (in Rusman, 2013), the theory of cooperative learning is informing the theory of Constructivism. Essentially the theory of constructivism in learning approach is an approach where students must individually locate and transforming information, check the information with the existing rules and revising when necessary. As such, education should be able to customize and provide support to be able to optimize and evoked potentials of students, fostering activity and creativity (creativity), and thus ensured the progression in the learning process. Ratna (in Rusman, 2013) learning model was developed from the theory of learning Constructivism which was born from the idea of Piaget and Vygotsky. Based on the research of Piaget who first put forth that that knowledge is constructed in the mind of a child. Cooperative learning is derived from the Cooperative which means working on together with mutual help to each other as one group or one team. According to Soeprijono (in Rahmawati, 2013) cooperative learning is "learning the broader concept which covers all types of group work including forms that more teachers are led by or directed by the teacher. The implementation of cooperative learning requires the participation and cooperation of group learning. Cooperative learning can improve the learning of students toward learning better, please help the attitude in some social behavior.

Social behavior is an atmosphere of mutual dependence which is a must to guarantee the existence of man (Ibrahim; 2001). Krech and Crutchfield, according to Ballachey in Ibrahim (2001), a person's social behavior that appears in the pattern of response between humans which manifested with mutual interpersonal relationships. Social behavior is also identical with the person's reactions towards others (Baron & Byrne; in Ibrahim; 2001). That behavior is demonstrated with feelings, actions, attitudes, beliefs, memories, or respect for other people. A person's social behavior is a relatively attitude to respond to others in a way that is different. Baron & Byrne in

Ibrahim (2001) States that there are four major categories that make up an individual's social behavior, namely; (1) the behavior and characteristics of others; (2) cognitive processes; (3) environmental factors; and (4) culture. Cooperative learning with types make a match (create pairs) was first developed by Lorna Curran in 1994. The model makes this a very good partner to enable learners in the learning process. This model is used by educators for the purpose of inviting learners to find answers that match the query are already prepared. One of the advantages of the match to make a cooperative is a student looking for a spouse while learning about a concept or topic, in a pleasant atmosphere.

According to Rusman (2013), the model makes a match (create pairs) is a type of cooperative learning method in. One advantage of this technique is the way learners search for the couple while learning about a concept or topic, in a pleasant atmosphere. The advantages of learning model types make a match among others: can improve student learning activities, either in physical or cognitive; because there is an element of the game, this method is fun; improve the understanding of students against the material to be learned and can improve student learning motivation; effective as a means to train students the courage to perform presentations and effectively train your

Tabel 1. Research Design

Class	Pre Test	Treatment	Post test
E	Q <sub>e1</sub>	X	Q <sub>e2</sub>
K	Q <sub>k1</sub>	-	Q <sub>k2</sub>

Description:

E = experimental Group

K = control group

X = treatment of experimental class by applying the model make a match

Q<sub>e1</sub>Q<sub>k1</sub> = pre test (preliminary test)

Q<sub>e2</sub>Q<sub>k2</sub> = post test (final test)

Treatment research is done based on the image below:

discipline students to appreciate the time to learn. Lie (2008) States that the model of learning type make a match or Exchange pair is an engineering study that gives students the opportunity to work with other people. This technique can be used in all subjects and for all levels of student age. Based on the opinion of the above, it can be concluded that cooperative learning model types make a match is a technique of learning by searching and matching pair/answer between a given problem with answers about a concept or topic in all subjects and grade levels.

## II. METHODS

The method of research methods used in this research was quasi- experiment method, namely the research function to know how the experiment or treatment against the characteristics of the subject desired by researchers, or want to apply an act or treat in the form of strategies or new working methods or procedures to improve the efficiency and effectiveness of the work (Mulyatiningsih, 2012). In this study as a treatment is treatment provided learners with cooperative learning model with structural types make a match. For other classes of learners through instructional models: with conventional methods lectures. The following table is a design research by using pretest-posttest control group design.

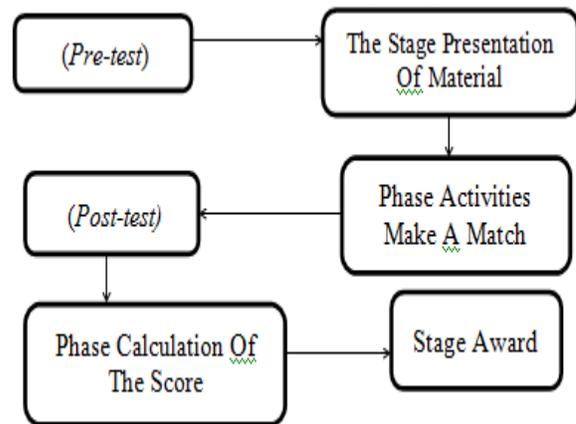


Fig 1. Application Make A Match in Learning In the techniques of data collection, in two groups of students, good control that applies to conventional learning models or experiments that implement cooperative learning model with structural types make a match will be given a pre-test and then after learning will be given the post-test. The purpose of the giving of the pre-test is to measure the ability of the students while the post-test to measure the extent to which students can absorb the lesson after learning. Then it will be seen from the difference between the control group and the experimental results by looking at the difference between the results of pre-test and post-test. So it can be seen whether there is a difference between the control group and experimental group. Analisis engineering test data using the Test using t. a t-test on the condition that the data should be normal and homogeneous. Therefore it needs to be done and its homogeneity test of normality test data.

The results of the Study Class Experiment Data obtained from the assessment of the results of the study data is the difference

in the value of pre-test and post-test students by applying the model of cooperative learning with structural types make a match on the experimental class X Food services SMK 38 Jakarta with sample data research as many as 25 students. Based on the data obtained, the lowest value of student learning outcomes while the highest value of 66.67 96.67 in addition, the average value of the overall study results of the experimental class is  $X_1 = 85,07$ . The lowest value of increased student learning results of highest value difference counts 6.67 of 33.3 in addition, the average value of the increase in the overall study results of the experimental class is  $X_1 = 22$ ,  $St = \text{raw } 8,49$  Byway, and the variance  $S^2 = 72,22$  (see annex). The next frequency distribution data are improved experimental class where learning outcomes range score (R) is 26.67, the number of class interval (K) is a rounded 5.61 6 be sought using the formula  $(1 K = 2 \log n)$  and the length of the class interval (R/K) is of a rounded 4.75 into 5 seen in the table below:

Tabel 2. Improved Learning Results Frequency Distribution Experiment Class

Class Interval	Lower Limit	Upper Limit	Absolute Frequencies	Relative Frequencies
6-10	5,5	10,5	4	166
11-15	10,5	15,5	3	12
16-20	15,5	20,5	4	16
21-25	20,5	25,5	3	12
26-30	25,5	30,5	8	32
31-35	30,5	35,5	3	12
			25	100 %

To facilitate interpretation of the data is the difference in the value of pre-test and post-test experimental class students can be described in the following histogram graph:

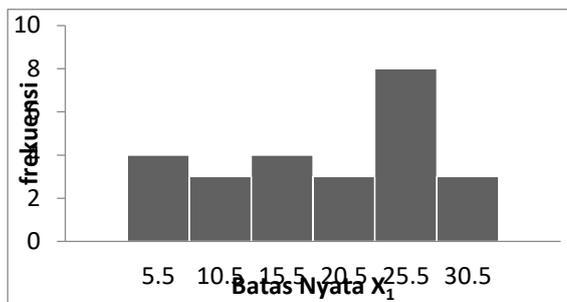


Fig 2. Histogram Graphs Improved Learning Results Of Experiment Class

From the histogram, the graph can be seen that the difference in score pre-test and post-test experiment of the highest class there is a lower limit on the number of students with as much 25.5 8 people with span difference value of 26-30.

**The Results Of The Study Of The Control Class**

The data obtained from the assessment of the results of learning viewed from the difference between the value of pre-test and post- test students by applying the conventional learning model on the control class X Foodservices SMK 38 Jakarta with sample data research as much as 27 students. Based on the data obtained, the value of the lowest student learning results of highest value while 56.67 amounted to 86.67 in addition, the average value of the overall study results of the experimental class is  $X_2 = 79,75$ . The lowest value of the difference between the value of pre-test and post-test students amounted to 3.3 while the difference between the highest score of 30 in addition, the average difference in the value of pre-test and post-test the entire control of the class is  $X_1 = 15,54$ ,  $St = \text{raw } 8,06$ . Byway, and the variance  $S^2 = 70,45$ . The next frequency distribution study results improved data class which controls the range of score (R) is 26.67, the number of class interval (K) is a rounded to 6 5.72 sought by using formula  $(1 K = 2 \log n)$  and the length of the class interval (R/K) is of a rounded 4.65 into 5 seen in the table below:

Table 3. Improved Learning Results Frequency Distribution Of The Control Class

Class Interval	Lower Limit	Upper Limit	Absolute Frequencies	Relative Frequencies
3—7	2,5	7,5	3	11,11111
8—12	7,5	12,5	6	22,22222
13-17	12,5	17,5	6	22,22222
18-22	17,5	22,5	5	18,51852
23-27	22,5	27,5	3	11,11111
28-32	27,5	32,5	4	14,81481
			27	100 %

To facilitate interpretation of the data is the difference in the value of pretest and post test grade control histogram graph can be described in as follows:

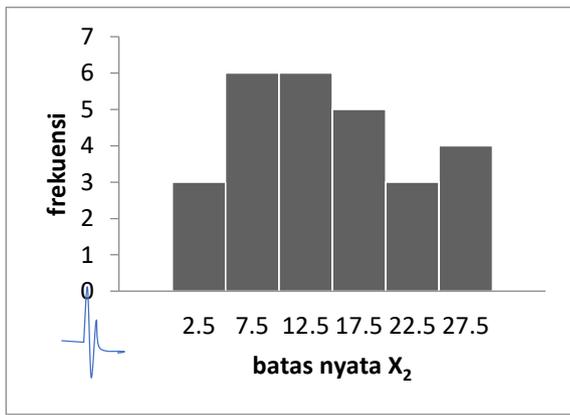


Fig 3. Histogram Graphs The Results Increase Learning Class Control ( $X_2$ )

From the histogram graph can be seen that the difference between the value of pre-test and post-test control class the highest there is a lower limit on the number of students with 7.5 as 6 people with difference in the span of 8-12 and the value at the lower limit of 12.5 with number of students as much as 6 people with span difference value of 13-17. Social behavior of the data in this study was analyzed with Likert scale, where each grain the statement submitted to the respondents were given four answer options: strongly agree, agree, undecided, disagree, and strongly disagree heard score (5-1). The data is processed by using a quantitative description of the analysis is expressed in the form of a score.

### III. RESULT AND DISCUSSION

The results of hypothesis testing in this study by using nonparametric statistical test because the test data using the Lilifors test of normality indicates abnormal Gaussian data so using test Mann-Whitney large scale because the data is more than 20. Mann-Whitney test suggests that  $H_0$  is rejected which means that there is the influence of the application of the cooperative learning model with structural types make a match against the learning outcomes Basic Boga. With the average results obtained studying students who apply cooperative learning model with structural types make a match of higher 85.07 of learning results of students who apply to conventional learning model of 79.75 calculation result obtained data an average increase in student learning outcomes by applying cooperative learning model with structural types make a match of 10 higher than average results improved student learning outcomes by applying the conventional learning model of learning and results because 15.54 improvements learn more experiment class high means it can be inferred that the cooperative learning model with type make a match positive effect .

These results are in line with the results of relevant research conducted by Dwi Rahmawati titled "influence Model of learning Cooperative Make A Match Against the results of the Learning process of the Students on the lesson 31 Highs School Administration in Jakarta," with the average results obtained studying students who apply cooperative learning models make a match ( $X_1 = 82.78$ ) is higher than the results of a study of students who apply to conventional learning model ( $X_2 = 75.96$ ) so that the

positive effect this means that the learning cooperative structural types make a match can be applied on the lesson in the field of Boga. This means the cooperative learning of structural types make a match can be used on all subjects but to note the allocation of time used as the structural type of cooperative learning make a match requires the allocation of sufficient time for long.

The model makes a match (create pairs) is a type of cooperative learning method in. One advantage of this technique is the way learners search for the couple while learning about a concept or topic, in a pleasant atmosphere of fun because students play but responsible while learning in learning. Cooperative learning model in the emphasis on the learning process student-centered learning arena students more active in learning. Based on the results of the descriptive analysis of social behavior for data retrieved as many as 41.6% of students stated very much agree that the application of CL can improve social behavior, 37.6% agree, 11.6% students expressed hesitation, 5.4% of the States did not agree, and 3.8% of students stated strongly disagree that the application of CL can enhance the social behavior of students.

In cooperative learning by structural type make a match demands the students to be more active in learning and potential student can be further developed so that students learn and active responsibility in learning in line with the theories expressed by Rusman (2013). Cooperative learning model making pupils develop knowledge where students analyze the answers and questions in the game make a match, abilities, and skills fully in the learning atmosphere that is open and democratic, open question is novices alike have the same responsibility in the learning and learning not only individually but also teamed up with his friend about a topic that will be discussed together and democratic students were taught to listen i.e. at the time of his friend were passing on information from the game make a match the form of the answer to question as well as students from other groups can listen so they can match the right pair of question and answers received and students also provide input if there is confusion in the match the right answers.

Students are no longer as a learning object, but it can also serve as tutor to tutor (peer tutor) for peers in learning make a match i.e. mutual listening between friends and give each other information and match the right information so that the purpose of learning can be achieved. So that students will be more responsible in spite of learning work together in groups but the mastery of learning materials is the responsibility of each individual it is in line with the theory presented by Isjoni (2012).

### IV. CONCLUSIONS

The low increase in student learning outcomes on the control class with the application of this conventional learning model can be seen in the steps of teaching-centered teachers (teacher centered learning) that are less closely understanding in students. On a different class of experiments with the application of the cooperative learning model with structural types make a match, student-centered learning (student-centered learning) by giving the game a compatibility card problem or answer about the material

covered. Learning structural type CL make a match, helping students to become more active, working in teams, and responsible. Social behavior data retrieved as many as 41.6% of students stated very much agree that the application of CL can improve social behavior, 37.6% agree, 11.6% students expressed hesitation, 5.4% of the States did not agree, and 3.8% of students stated strongly disagree that the application of CL can enhance the social behavior of students. Analysis of the value of the results of a study of two groups of samples tested using test research hypotheses Mann-Whitey. From the results of the calculation, obtained Z accounting of Z table and 2.62 on  $\alpha = 0.05$  of 1.96. From the results of this research it can be concluded that reject  $H_0$  if Z accounting  $>$  Z table which means the  $H_a$  received, from the data above it can be concluded that the application of the Cooperative Learning by Structural type Make A Match can increase in a positive social behavior and the results of study of elementary students of SMK Boga Field Expertise food services.

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