JVCE 5 (2) (2020) : 156-164

Journal of Vocational Career Education

https://journal.unnes.ac.id/nju/index.php/jvce

The Effectiveness of Co-Op Co-Op & Make a Match Combination Model in Online Learning

Bintari Febriay L.R[1]✉ , Nur Qudus[2], I Made Sudana[2]

[1]SMK Lemuria Kudus, Indonesia
[2]Pascasarjana, Universitas Negeri Semarang, Indonesia

Article Info

Article History :
Received August 2020
Accepted October 2020
Published December 2020

Keywords:
Online Learning, Co-op Co-op Learning Model, Make a Match Learning Model

Abstract

Combining Cooperation-Cooperative (Co-op Co-op) and Make a Match model can stimulate students to be active in online learning. Students were able to construct their knowledge independently by using the Co-op Co-op model. Learning atmosphere became attractive with finding the partner games during the class used the Make a Match model. This combination model made students more active and did not quickly feel bored. This research aimed to know the effectiveness of the Co-op Co-op and Make a Match model in online learning for based competency in operating survey tools and mapping to improve students' achievement. The current research used quasi-experiment research. The experiment class consists of 35 ten grade students of Building Information Modeling (DPIB) one, while the control class consists of 36 ten grade students of Building Information Modeling (DPIB) two. Pre-test and post-test were given by using Google form to both groups. The average score of N-Gain achieved 75,9%, which means the implementation learning model was effective to advance students' achievement. Independent sample T-test got T count = 4,59 > T. It can be said there was a significant difference in average score between experiment and control group. Furthermore, the students' interest questionnaire achieved 84,5. In conclusion, Co-op Co-op and Make a Match model in online learning by using supporting tools (Google Meet, WhatApp group, etc.) not only effective to improve students' achievement but also got positive responses from the participants. The teacher can use this combination model to improve students' interest and achievement in online learning.

✉ Correspondence :
Jl. Wijaya Kusuma No.88, Area Sawah, Karangbener, Kec. Bae, Kabupaten Kudus, Jawa Tengah 59323
E-mail : bintariflr@gmail.com

p-ISSN 2339-0344
e-ISSN 2503-2305

INTRODUCTION

Learning is the main activity in all teaching and learning processes that aims to change behavior. There are four learning and teaching principles; learning to know, learning to do, learning to live together, and learning to become something (Handayani, 2017). This condition forces all stakeholders to conduct the teaching and learning process online. The teacher applied some innovations in this teaching process such as *google classroom, WhatsApp group, google meet, zoom, etc.* Some researchers explained that the main importance of the online learning process was the satisfying interaction between student-teacher (Oyediran, 2020; Alquldah, 2020; Elzainy, 2020; Dhawan, 2020; Adnan, 2020). The satisfying interaction between student-teacher can be achieved if the teaching and learning process was planned accurately, teachers were competent, and have ample knowledge.

In the subject of Fundamental of Construction and Land Surveying (DDKTPT) which practice become dominant, based competency especially in operating survey tools and mapping must be conducted by using an online application. Even though there were supporting applications, many problems during online class were existed such as (1) lack of motivation and tend to be passive since the students quickly get bored; (2) the students cannot infiltrate the materials maximally; (3) practical subject was difficult to conduct by online; (4) teacher's uncertainty in using learning methodology that suitable for online class; (5) lack of students-teacher engagement during the online class.

Based on the DDKTPT middle examination test in X DPIB State Vocational High School 2 Pati showed that 36% of X DPIB students passed the passing grade, 14% of X DPIB 2 students, and 19% of X DPIB 3 students achieved the passing grade. The solutions were needed to solve the problems so that the online learning atmosphere became enjoyable and acceptable to the students. Cooperative learning provided a space for students to explore their critical thinking and learning responsibility. Cooperative learning was one of the effective methods which gave a positive impact on student's performance and social development (Maanoj, 2020). Hamadi (2020) explained cooperative learning has the concept that developing interpersonal skills is as crucial as a learning activity. In conclusion, applying Cooperative learning can motivate students to be confident to share their opinion, appreciate others, and sharing knowledge. In Cooperative learning, students were designed to be active so that a positive impact can motivate and improve students' achievement.

This research implements two learning models namely Cooperation- Cooperative (Co-op Co-op) and Make a match. Those models included Cooperative learning. Qurohman (2017) elaborated that Cooperative learning especially Co-op Co-op specialized in the task-based method. Puger (2008) explained that students who have used the Cooperation- Cooperative (Co-op Co-op) model got better achievement than students who used the conventional method. Irwanto (2017) claimed that making class enjoy and active become important. By using *the Make a Match* model, students become more active and involve in the learning process. Furthermore, Rahayu (2019) explained that M*ake a Match* made a teacher was not only a teacher but also a facilitator. In conclusion, combining *Co-op Co-op* and *Make a match* hopefully can bring a good atmosphere so that the students did not quickly feel bored and the online learning process can be maximized.

The previous study concluded that experiment class that used *Co-op Co-op* and *Make a Match* model can improve students' achievement rather than class control who did not apply this model (Khasanah, 2011; Apriadi, 2013; Munthoha, 2013; Theandin, 2015; Thamimi, 2017; Ismawati, 2020). The niche of the study was the current research applied *Co-op Co-op* and *Make a Match model* in an online context, while all the previous studies used it in direct or face-to-face learning.

METHOD

The current research used quasi-experiment research that applied actions or called treatment. This research was conducted by providing an experiment group and a control group as a comparison. The research design of the study applied *non-equivalent, and posttest control group design.* It was almost similar to *the pretest-postest control group design*. The difference laid on the experiment group and control group were not chosen randomly. This research has been carried out from January – July 2021. The research design can be elaborated as follows:

E :	0_1	X	0_2
P :	0_1		0_2

E: Experiment symbol.
P : Controlling symbol.
0_1 : pre-test
0_2 : post-test
X : Treatment (online learning used Cooperative Learning, combining Co-op Co-op and Make a Match model).

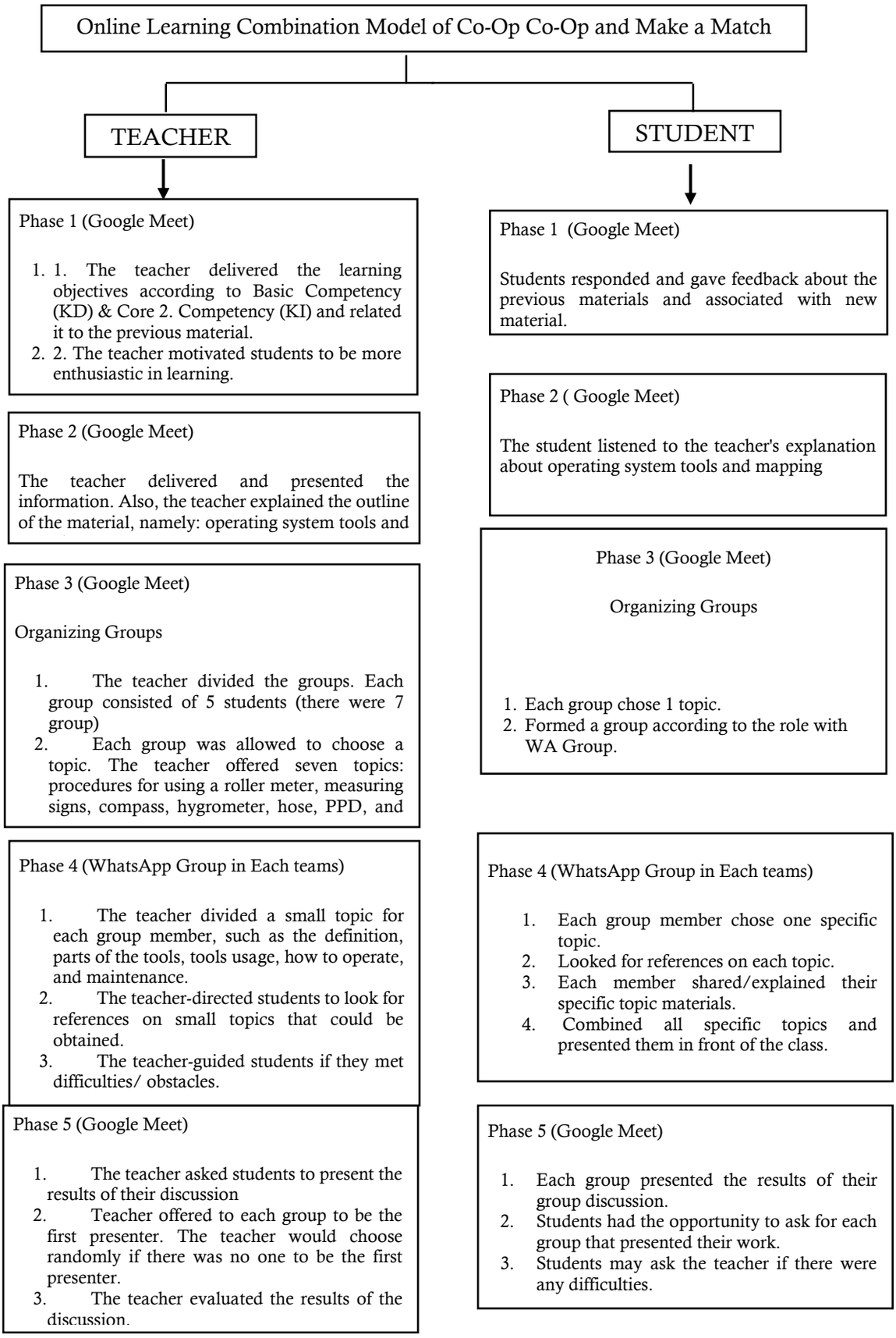
The research procedure of the study as follows:

1. Preliminary Study
   A preliminary study was conducted by learning theory, related study, and interview with Fundamental of Construction and Land Surveying (DDKTPT) teachers to dig up the problems faced in online learning.
2. Developing Learning Model
   This research applied Cooperative Learning by combining *Co-op Co-op and Make a Match*. By using *the Co-op Co-op* model, students were more responsible in both team and individual. Furthermore, the *Make a Match* model gave students more opportunities to understand the materials and to be active. This model gave space to find their partner during the learning process. So, they will enjoy the online class and be far from bored. The researcher tried to combine two models in online learning accurately since the online class was different from face to face classroom.
3. Constructing Test Research Instrument
   The research instrument of the study used a test, and the materials of the assessment were operation procedure of tools survey and mapping. The form of the test was students' learning outcomes. It aimed to measure and assess learning achievement through a test that has to be done by the participants.
4. Constructing Questionnaire Instrument
   This research employed a questionnaire to gain the data. The questionnaire of the study was students' interest in the learning process. This questionnaire aimed to dig up students' interest in learning that applied *Co-op Co-op* and *Make* a *Match* model.
5. Examining Test Research and Questionnaire Instrument
   The instruments of the questionnaire were tested in X B1 class of State Vocational High School 2 Pati. The purpose of this phase made sure that all questions were qualified and met the requirement. If the instruments were not valid, the researcher reconstructed the instruments until passing the criteria.
6. Pre Test
   This phase was conducted after all instruments were valid. A pre-test was a phase where the students have to answer several questions before they got the treatment. It aimed to get the information how deep students' knowledge toward operational procedure of survey tools subjects. This test was given by using Google Forms.
7. Implementing Model at Experiment Class
   Implementing Model at Experiment Class is the essential part of the research since the researcher gave treatment to the experiment class. The experiment used the Cooperative Learning model, especially *Co-op Co-op* and *Make a Match* that developed by the researcher.
8. Post Test
   After the experiment class had done, a post-test was given to the students. Both groups (experiment and control) joined in the post-test. It aimed to know whether there were any differences between their achievements after implementing the Cooperative learning model or not. This post-test was given by Google form.
9. Processing Data and Conclusion
   After gaining research data, the data was processed. The researcher presented and explained the finding before taking the conclusion. In this stage, the whole research can be seen as described in the research objectives.

RESULT AND DISCUSSION

1. Result of the study
   a. The Implementation of Cooperative Learning through *Co-op Co-op & Make a Match* model in Online Learning

The implementation of online learning that combined *the Co-op Co-op* and *Makes a Match* model was started by explaining the learning purpose to the students. Then, the learning process used *Co-op Co-op* and continued with the *Make a Match model.* The flow chart of *Co-op Co-op* and *Make a Match* in online learning can be seen as follows:


Online Learning Combination Model of Co-Op Co-Op and Make a Match
TEACHER
STUDENT
Phase 1 (Google Meet)
1. 1. The teacher delivered the learning objectives according to Basic Competency (KD) & Core 2. Competency (KI) and related it to the previous material.
2. 2. The teacher motivated students to be more enthusiastic in learning.
Phase 2 (Google Meet)
The teacher delivered and presented the information. Also, the teacher explained the outline of the material, namely: operating system tools and
Phase 3 (Google Meet)
Organizing Groups
1. The teacher divided the groups. Each group consisted of 5 students (there were 7 group)
2. Each group was allowed to choose a topic. The teacher offered seven topics: procedures for using a roller meter, measuring signs, compass, hygrometer, hose, PPD, and
Phase 4 (WhatsApp Group in Each teams)
1. The teacher divided a small topic for each group member, such as the definition, parts of the tools, tools usage, how to operate, and maintenance.
2. The teacher-directed students to look for references on small topics that could be obtained.
3. The teacher-guided students if they met difficulties/ obstacles.
Phase 5 (Google Meet)
1. The teacher asked students to present the results of their discussion
2. Teacher offered to each group to be the first presenter. The teacher would choose randomly if there was no one to be the first presenter.
3. The teacher evaluated the results of the discussion.
Phase 1 (Google Meet)
Students responded and gave feedback about the previous materials and associated with new material.
Phase 2 (Google Meet)
The student listened to the teacher's explanation about operating system tools and mapping
Phase 3 (Google Meet)
Organizing Groups
1. Each group chose 1 topic.
2. Formed a group according to the role with WA Group.
Phase 4 (WhatsApp Group in Each teams)
1. Each group member chose one specific topic.
2. Looked for references on each topic.
3. Each member shared/explained their specific topic materials.
4. Combined all specific topics and presented them in front of the class.
Phase 5 (Google Meet)
1. Each group presented the results of their group discussion.
2. Students had the opportunity to ask for each group that presented their work.
3. Students may ask the teacher if there were any difficulties.

Phase 6 (Google Meet) 1. The teacher told the students they would join the game, looking for a partner and explain the rules of the game. 2. The teacher divided the group into 2, namely the answer group and the question group. Students with odd student numbers became the question groups, and students with even numbers became the answer groups. 3. The teacher sent a message by WhatsApp to each student to tell the questions or answers.	Phase 6 (Google Meet) 1. 1. Students listened to the teacher's explanation carefully. 2. 2. Students asked the teacher if the teacher's explanation was unclear. 3. 3. Remembering the questions or answers based on the received message
Phase 7 (Google Meet) 1. The teacher allowed students who hold questions to read each question. 2. The teacher allowed the students to read the answers 3. The teacher guided the students so that the discussion run well.	Phase 7 (Via Google Meet) 1. Students, who held questions, read each question. 2. Students, who held answers, listened to the question of the student who delivered questions. 3. The student who had the answer read each answer. 4. The student who held the question listened to each answer that read by their friend and analyzed it, which was the right one for the question 5. Students were given time to discuss on zoom and decided their partners.
Phase 8 (Google Meet) 1. After students found a partner, the teacher evaluated and gave feedback if there were some mistakes. 2. The teacher and students concluded the results of learning and stimulated students to be more unified.	Phase 8 (Google Meet) Students and teachers concluded the material that had been studied.

b. Students' Achievement Data before Experiment (Pre-test Result)

Table 1. Pre-test Result

No	Component	Pre-Test	
		Experiment	Control
1	Total students	35	36
2	Average	72	71.8
3	Highest Score	95	95
4	Lowest Score	40	45

Source: Research data, processed in 2021

Based on the data above, it showed both classes have a similar average score. Furthermore, the highest score for both groups was the same, and the lowest score was quite similar. In conclusion, both groups have equal abilities.

c. Students' Achievement Data after Experiment (Post-test Result)

The post-test result was gained from students' scores in the experiment and control class. The result of the post-test can be seen as follows:

Table 2. Post-test Result

No	Component	Post-Test	
		Experiment	Control
1	Total students	35	36
2	Average	91.8	80.5
3	Highest Score	100	95
4	Lowest Score	73	59

Source: Research data, processed in 2021

The data showed different scores occurred significantly between the experiment and control class. Based on the data above, it can be concluded that the experiment class has a higher score rather than the control class. The different results came from different treatments between both groups. Online learning in experiment class applied Cooperative learning through combining *Co-op Co-op & Make a Match* model. On the other hand, the control class did not use those combination models.

d. N-Gain test

N-Gain was the differences score between pre-test and post-test. This test purposed to know how effective the combination model between *Co-op Co-op* and *Make a Match* in the experiment group. Furthermore, the researcher compared N-Gain in each group.

Table 3. N-Gain Index Result in Experiment and Control Class

No	Class	N-Gain Average	N-Gain Maximum	N-Gain Minimum	Category
1	Experiment	75.9%	100%	51%	Effective
2	Control	20.6%	60%	0%	Ineffective

Source: Research Result in 2021

Based on the N-Gain test, it can be concluded that implementing two model combinations between *Co-op Co-op* and *Make a Match* model was effective to improve students' achievement in X grade especially at Fundamental of Construction and Land Surveying (DDKTPT) subject.

e. Independent Sample T- test

Independent Sample T-test was used to know whether a significant difference score occurred or not in the research. The test was applied to the post-test score of both groups (experiment and control class). Based on the SPPSS application, the result was explained as follows:

Table 4. The Result of Independent Sample T-Test

Independent Samples Test							
		Levene's Test for Equality of Variances		T-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Learning Result	Equal variances assumed	2.50	0.118	4.59	69	0.000	10.632

Source: Research Result in 2021

The data showed T count = 4,59 > T table = 1,99 (df = 69, α = 5%) and mean difference achieved 10,632, it means that there were significant difference in average score between experiment and control group. In addition, the experiment group has a higher average score than the control group.

f. Data analysis of Students' Interest Questionnaire

Students' interest toward combination model in online learning at Fundamental of Construction and Land Surveying (DDKTPT) subject of Vocational High School 02 Pati was gained from questionnaire through Google from. The result can be seen as follows:

Table 5. Students' Interest toward *Co-op Co-op* and *Make a Match* model in Online Learning

No	Indicator	Percentage of Answer	Category
1	Receive learning with pleasure	87 %	Very interest
2	Receive lessons without coercion	85%	Very interest
3	Pay attention in learning activities	80%	Interest
4	Interested in learning	86%	Very interest

Source: Research data, processed in 2021

Based on the data, most of the students gave very interesting responses toward online learning that used *Co-op Co-op* and *Make a Match* model. Students enjoyed and were interested to join in online learning.

2. Discussion

The research started by taking pre-test data in the experiment and control class. Pre-test in experiment class has been conducted on April 21, 2021, while control class had been held on April 22, 2021. Based on the data analysis, the research result showed the control and experiment groups have a similar condition. This initial condition can be seen by using pre-test through Google form. Then the data was tested by applying normality and homogeneity tests. The normality and homogeneity tests showed that sample class or control and experiment class had the same initial condition. It means that the control class can be used as a comparison class for this research.

The treatment for the experiment class was held from April 28, 2021 to May 12, 2021 by applying *Co-op Co-op* and *Make a Match* model in online learning. On the other hand, the control class was held by presenting materials that used Ms. PowerPoint software from April 29, 2021 – May 13, 2021. After the learning process had been done, a learning evaluation was held to draw students' achievement through post-test. This post-test was spread using Google form on May 12, 2021 for the experiment class and May 13, 2021 for the control class.

Puger (2008) explained that students who studied using *Co-op Co-op* and *Make a Match* model get better achievement than students who used the conventional method. It proofed with the average pre-test score in the experiment class increased from 72 to 91,8. On the other hand, the average score of the control class increased from 71,8 to 80,5. The difference score between the two groups was 11,3. Students' achievement increased in the experiment group since they were given *the Co-op Co-op* and *Make a Match* model in online learning. This model stimulated students to be active in discussion and confident so that the materials can be easy to understand. On the other hand, the increase of students' achievement in the control group did not significant since the students only listened to the materials presented by the teacher without any group discussion in the class.

N-Gain was applied to know how effective the combination model between *Co-op Co-op* and *Make a Match* was in the experiment group. The result of the N-Gain test was compared with the control class that did not give the treatment like the experiment group. The result of N-Gain was presented in table 3. The average score of the N-Gain test got 75,9%, while the control class achieved 20,6% of the average score that included an invective. The difference score between pre-test and post-test in experiment class was higher than pre-test and post-test in class control. This condition was affected different treatments where the experiment class used the *Co-op Co-op* and *Make a Match* model while the control class used the traditional model. Based on the N-Gain test, it can be concluded that implementing two model combinations between *Co-op Co-op* and *Make a Match* model was effective to improve students' achievement in X grade at Fundamental of Construction and Land Surveying (DDKTPT) subject.

Independent Sample T-test was used to know whether a significant difference score occurred or not in the research. The test was applied to the post-test score of both groups (experiment and control class). Based on table 4, T count = 4,59 > T table = 1,99 (df = 69, α = 5%) and mean difference achieved 10,632, it means that there were significant difference in average score between experiment and control group. This condition occurred since the average post-test score of the experiment group was higher than the control group. In the control group, some students got high scores. Unfortunately, it happened insignificant, like in the experiment group. The difference in average scores was affected by students' understanding of the materials.

Data analysis of students' interest questionnaire can be seen in table 5. Four indicators in the questionnaire got 84,5 of average score or were included in *the Very Interest* category. Four of three indicators achieved answer percentage with

V*ery Interest,* while one indicator got I*nterest,* namely pay attention in the learning process. The researcher tried to explore why the students chose I*nterest.* Based on an interview with the students, they explained that it was because the learning process was held online, and not all students had a good atmosphere at home. So, they cannot fully concentrate on the learning process. However, three indicators got a high percentage. In accumulation, all categories achieved V*ery Interest* toward *Co-op Co-op* and *Make a Match combination* in online learning in DDKTPT subject. This result was in line with Irwanto (2017). Irwanto (2017) explained that making class enjoyable and active was the crucial point. By using *Make a Match,* students became active and involved in the learning process. The evidence was students' responses which achieved 84,5% or included V*ery Interest.*

In conclusion, the implementation of *the Co-op Co-op* and *Make a Match combination* model can increase students' achievement in Fundamental of Construction and Land Surveying (DDKTPT) subject at X DPIB State Vocational High School 02 Pati. Furthermore, this model was effective for increasing students' in online learning.

Students discussed the materials by using the WhatsApp group. This group discussion was covered in *the Co-op Co-op* model. Furthermore, the learning process continued to find a partner (*Make a Match).* This activity was supported by online meetings such as Google meet the application. This combination stimulated students to be active, built a joyful atmosphere, and was efficient for increasing students' achievement in the Fundamental of Construction and Land Surveying (DDKTPT) subject.

CONCLUSION

Based on the finding and data analysis, it can be concluded *Co-op Co-op model* emphasized the students' activity to involve in a group. While *Make a Match model* allowed students to think independently through finding a partner game. Combining *Co-op Co-op* and *Make a Match* model was effective. Furthermore, it was efficient to increase students' interest during online learning. It was proofed from students' positive responses who gave their feedback by using a questionnaire. The teacher can use this result to improve students' achievement and students' interest in participating in online learning.

REFERNCES

Adnan, M & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. Journal of Pedagogical Sociology and Psychology. 2(1), 45-51.

Alqudah, N. M. dkk. (2020) Perception and experience of academic Jordanian ophthalmologists with E-Learning for undergraduate course during the COVID-19 pandemic. Annals of Medicine and Surgery. 59, 44-47

Apriadi, S. (2013). "The Influence of Co-Op Co-Op to Teach Reading Skill Viewed from Students' Interest". Tesis. Program Pascasarjana Universitas Sebelas Maret. Surakarta

Elzainy, A. dkk. (2020) Experience of e-learning and online assessment during the COVID-19 pandemic at the College of Medicine, Qassim University. Journal of Taibah University Medical Sciences. 15 (6), 456-462

Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. Jornal of Education Technology . 49 (1), 15-22

Hamadi, M. dkk. (2020) Integrating social media as cooperative learning tool in higher education classrooms: An empirical study. Journal of King Saud University.

Handayani, S. dan Nurcahyono, M.H. (2017). Strengthening of Competences Planning Truss Through Instructional Media Development Details. AIP Conference Proceedings. Engineering Internasional Conference. 1-12

Irwanto. (2017). Using Make-A Match To Improve The Students' Reading Comprehension At Mts Guppi Samata Gowa, Eternal. 3 (2), 161-172

Ismawati, Yulia. dkk. (2020). Penerapan Model Pembelajaran Kooperatif Tipe Make a Match Pada Mata Pelajaran IPS Pokok Bahasan Perjuangan dalam Mempersiapkan Kemerdekaan Indonesia untuk Meningkatkan Hasil Belajar Siswa Kelas VA SDN Klatakan 01 Jember. Jurnal Edukasi.7(2) : 1-4

Khasanah, U. (2011). Pengaruh Pembelajaran Make a Match dan Index Card Match terhadap Pemahaman Siswa Kelas X SMA Inatitut Indonesia Semarang Tahun Ajaran 2010/2011. IKIP PGRI Semarang

Manoj, A. (2020). Cooperative Learning Techniques to Bridge Gaps in Academia ans Corporate. Procedia Computer Science. 175, 289-295.

Muntoha, H. D. Y. (2013). Penerapan Model Pembelajaran Make a Match untuk Meningkatkan Aktivitas Belajar Siswa pada Mata Pelajaran Ekonomi Kelas X SMA N 14 Semarang. Economic Education Analysis Journal. 1(2), 39-45

Oyediran, W. O. dkk. (2020) Prospects and limitations of e-learning application in private tertiary institutions amidst COVID-19 lockdown in Nigeria. Heliyon. 6.

Puger. (2008). Pengaruh Metode Pembelajaran Kooperatif Model Coop Co-op dan Motivasi Belajar terhadap Prestasi Belajar Biologi pada Siswa Kelas IX SMP Negeri 2 Seririt (Eksperimen pada Pokok Bahasan Peningkatan Produk Pangan). Jurnal Pendidikan dan Pengajaran UNDIKSHA. 2(1): 973- 992.

Qurohman, M. T. (2017). Meningkatkan Kemampuan Pemecahan Masalah Kalkulus Lanjut melalui Pembelajaran Kooperatif Tipe Co-Op Co-Op. Jurnal Pendidikan. 11(1), 32–37.

Rahayu, Enita (2019). "Pengaruh Metode Pembelajaran Co-Match Terhadap Peningkatan Aktivitas dan Kompetensi Siswa Kelas X Jurusan Tata Boga SMK N 4 Yogyakarta". Tesis. Progra, Pascsarjana Universitas Negeri Yogyakarta. Yogyakarta

Thamimi, m. (2017). Penerapan Model Pembelajaran Kooperatif tipe Co-Op Co-Op terhadap Kemampuan Mengidentifikasi Unsur Intrinsik Cerpen Siswa Kelas X. Jurnal Edukasi. 15(2), 253-260

Theandin. (2015). Implementating Coopertive Learning Using Co-Op Co-Op Method To Enhance Students' Ability to Determine Explicit And Implicit Information. Prosdiding ICTTE FKIP UNS. 1(1) 997-1006.