

Case-based learning in improving critical thinking skill on reading comprehension for the eleventh grade students at SMA N 2 Semarang

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Abstract

The aim of this study was to find out whether the use of CBL is effective in improving students' critical thinking skill of the eleventh grade students of SMA N 2 Semarang in academic year of 2021/2022. The design of this study was quasi experimental design and the method that was quantitative method. The sample of this study consisted of 36 students of XI MIPA 3 as the experimental class and 36 students of XI MIPA 4 as the control class. The try out test to XI MIPA 1 was done to know the validity and the reliability of the instrument. Pre-test and post-test was given to the experimental and control class. The result was analyzed by using SPSS 26 version. The result of the pre-test of experimental and control class were 64.17 and 57.89. While the result of post-test of experimental and control class were 75.11 and 72.22. The post-test result from both classes were analyzed by using t-test. The result of the analysis shows that sig (2-tailed) $0.333 \geq 0.05$ which means there was no significant difference in students' mean reading scores between experimental class which was taught by using CBL and control class which was not taught by using CBL. It was concluded that H_1 was rejected and H_0 was accepted. Therefore, the use of case-based learning in improving critical thinking skill on reading comprehension for the eleventh grade students at SMA N 2 Semarang was not effective.

Keywords: *Case-Based Learning, Critical Thinking, Reading Comprehension*

INTRODUCTION

Conventional learning is considered incompatible with the progress of the world of education in the era of globalization because it tends to be ineffective and causes low student motivation to learn. Therefore, a learning model is needed that can make students able to survive and compete globally which can also follow the developments and changes of the times, especially in the learning process. Rahabav (2016) in Hasan et al (2019) stated that the quality of education in Indonesia, is still far behind the rest of the world, including the ASEAN countries. According to Schleicher (2018) in Hasan et al (2019) Indonesia ranked 62nd out of 70 countries in terms of science literacy with score of 402 based on the results of a survey by the Organization for Economic Cooperation and Development (OECD) through the ranking of world education related to the Program for International Student Assessment (PISA). Besides that, the 2015 Program for International Student Assessment (PISA) result shows that Indonesia was one of the lowest students' literacy levels in English in the world (Ganie, Deliana, & Sinar, 2020). According to Bellaca et al (2010); Dwyer, Hogan, and Stewart (2014) in Hasan et al (2019) 21st-century learning framework includes three skills as a result of the learning process consisting of (1) life and career skills, (2) learning and innovation skills, and (3) information media and technology skills.

For learning and innovation skills, learning practices in schools today must be able to equip students with four abilities: creativity, critical thinking, collaboration, and communication which are commonly referred to as 4Cs. In Bloom's taxonomy, this 4C ability is in the realm of higher-order thinking skills (HOTS). Learning development oriented to Higher Order Thinking Skills (HOTS) is a program developed as an effort of the Ministry of Education and Culture to improve the quality of learning and improve the quality of graduates. Therefore, there are things that are different from usual which students are required to be able to solve problems and find solutions to problems at a higher level than before. In this case, students will be invited to think critically (Hasan, Lukitasari, Utami, & Anizar, 2019). Based on Critical Thinking Cooperation (2006) the ability that is beyond memorization can be called critical thinking. Students with critical thinking are encouraged to think for themselves, question hypotheses, analyze and synthesize events and go further by developing new hypotheses and testing them against facts (Iyer, 2019).

Critical thinking requires students to be active in learning activities. Surely, without great activity and participation, it is unlikely that students themselves will solve problems and find solutions. According to Niemi (2002), Rotgans and Schmidt (2011), Niemi and Nevgi (2014) in Demirci (2017) active learning is the impact of active students on learning and student participation in the learning process that allows students to focus on creating knowledge by focusing on skills such as analytical thinking, solving problems and meta-cognitive activities that develop students' thinking. One of the learning models in the 2013 curriculum that is oriented to HOTS is Case-Based Learning (CBL). CBL is an instructional learning method that is oriented to a problem-solving approach (Wospakrik, Sundari, & Musharyanti, 2020). CBL is an instructional learning method that is oriented to a problem-solving approach. According to Carder, Willingham, & Bibb (2001) and Snavely (2004) in Diao (2020), CBL is considered a variation or part of Problem Based Learning (PBL). PBL provides a guide to the curriculum and tends to be unclear, complex, or unclear for a good reason where students are left in charge of their own learning while the teacher only acts as a facilitator. While CBL tends to be short, controversial, contemporary and involves

interesting characters; they are planned to stimulate dialogue and force decisions (Diao, 2020).

Reading is not only a matter of interpreting words, but also an important activity in language education and a means of integrating and expanding language skills. According to Sheeba and Ahmad (2012) reading is a purposeful activity where one can read to obtain information or verify existing knowledge, or to criticize the author's ideas or writing style. In addition, one can also read for pleasure, or to increase knowledge about the language being read. The purpose of reading also determines the right approach to reading comprehension. Reading comprehension is an active cognitive process that involves reasoning to form the meaning of a text and understand it effectively and comprehensively (Abdelhalim, 2017). In this school, the students' cognitive abilities in English lessons on average are the same in each class.

This study is conducted to determine the results of using one of the 2013 curriculum learning methods, namely Case-Based Learning (CBL) in 11th graders at SMA N 2 Semarang. The readings presented are also readings that can support the students' critical reading learning process. The kind of reading in this study is reading comprehension which focuses on analytical exposition reading. The reasons for choosing the topic are many students are not used to reading critically and case-based learning (CBL) has not been widely applied in language teaching. The objective of this study is to find out whether the use of CBL is effective in improving students' critical thinking skill in the eleventh grade students at SMA N 2 Semarang.

METHOD

This study used quantitative approach. This study used experimental research which is quasi-experimental research to find out students' critical thinking on reading comprehension with use case-based learning. The quasi-experimental where participants are non-randomly included in the treatments or participants can experience natural experimental actions. The population of this study was the eleventh grade students of SMA N 2 Semarang in academic year of 2021/2022 which consists of around 360 students. There were two classes as the sample of the study. One class was an experimental group and another class was a control group. In determining the experimental and control group, this study used non-probability sampling which there is no possibility to use randomization to select the sample. This study used purposive sampling to select the sample. Purposive sampling is selecting participants based on some criteria. The criteria of taking the sample are based on teacher's information and my experience during Internship III. The criteria that used both classes have the same ability. the writer took two classes, they were XI MIPA 3 as the experimental class and XI MIPA 4 as the control class because they have cognitive level of achievement in reading comprehension based on the teacher's information and my experience while teaching I was there. the test is used for knowing how far the students' ability or knowledge in mastery the text. The number all of the questions were 25 items with time allocation was 60 minutes in pre test and 50 minutes in pos test. In scoring, each number is given score "4" point to the students who answer correctly and the score "0" point to the students who answer wrongly.

RESULTS AND DISCUSSION

The respondents of this study were students who have the same level in grade, average age, and capability in English learning. The population of this study was all of the

eleventh graders of SMA N 2 Semarang and two classes were taken as the sample. They were XI MIPA 3 as the experimental class and XI MIPA 4 as the control class. The XI MIPA 3 as the experimental class has 36 students which consist of 14 males and 22 females. Additionally, the XI MIPA 4 as the control class has 36 students which consist of 17 males and 19 females. Therefore, the total of the respondents were 72 students. The try out was given to the XI MIPA 1 which has 36 students. The purpose of the try out result is to gather evidence to support the validity and reliability instrument. The try-out test was conducted on Wednesday, February 23rd 2022. The material test was the reading comprehension of analytical exposition text which consists of 50 multiple choice questions and the time allocation was 60 minutes. This study used face and content validity which the result of rubric judgment of try out, there were 50 items which were valid, and there was no item which was invalid. Additionally, this study used Cronbach's Alpha Reliabilities formula in SPSS 26 version which the result of reliability test shows that $0.921 > 0.6$ that can be concluded that the instrument is reliable.

Pre-test of an experimental class and a control class were conducted on March 14th 2022. The students were given 25 multiple choice questions with time allocation was 60 minutes. Analyzing the multivariate normality in this study was done by using one-sample Kolmogorov Smirnov which the standard normality is 0.05. The distribution is normal if sig (2-tailed) > 0.05 on the contrary and the distribution is not normal if sig (2-tailed) < 0.05 (Ghozali, 2011). The pre-test standard normality was analyzed by using SPSS 26 version. The result can be seen in table 1. The result of pre-test experimental class normality of significant 2-tailed is 0.063 which higher than 0.05 then the result of pre-test control class normality of significant 2-tailed is 0.089 which higher than 0.05. Therefore, it can be concluded that the sample were normal. After the standard normality test was done, it can be continued with the standard homogeneity test. The standard homogeneity test was for knowing that the experimental and control group have the same ability. The data of experimental and control class were said to be homogenous if the significance scores of the data $\geq \alpha$ (0.05). The pre-test standard homogeneity was analyzed by using SPSS 26 version. The result can be seen in table 2. The result of homogeneity test shows that the significance score of the experimental and control class was $0.104 \geq 0.05$ Therefore, it can be concluded that all sample based on experimental and control class were equal or homogenous or have same variance. The pre-test result of experimental and control class were counted by using T-test after the normality and homogeneity test were done. The result of T-test by using independent sample T-test can be seen in table 3. It can be seen that the mean score of pre-test in experimental class is 64.17 and the mean score of pre-test in control class is 57.89. It can also be seen that both classes have an average score that is nearly as significant. Based on the table, it shows that Sig. (2-tailed) $0.113 \geq 0.05$ which means H_0 is accepted. Therefore, it is important to do the treatment because there is no significant difference of the mean score between experimental and control class in the pre-test.

Post-test of an experimental class and a control class were conducted on April 11th 2022. The experimental class was students of XI MIPA 3 which has 36 students and the control class was students of XI MIPA 4 which has 36 students. The purpose of post-test was to find out the result of students' ability after treatment was given or whether the treatment is successful or not. The students were given 25 multiple choice questions

with time allocation was 50 minutes. After post-test was done in experimental and control class, the post-test result of experimental and control class were analyzed by using T-test. The result of T-test by using independent sample T-test can be seen in table 4. It shows that the mean of the experimental class is 75.11 and the control class is 72.22 which means the ability of the control class is higher than the experimental class. In addition, the table shows that Sig. (2-tailed) $0.333 \geq 0.05$ which means that H_0 was accepted and H_1 was rejected. It can be concluded that there is no significant difference in students' mean reading scores between the experimental class which was taught by using CBL and the control class which was taught not by using CBL.

This study used XI MIPA 3 as the experimental class. XI MIPA 3 has 36 students which consist of 14 males and 22 females. The experimental class was taught by using Case-Based Learning method. The treatment was carried out twice. The first treatment was conducted on March 21st, 2022 at 10.45 – 11.45. This treatment class was carried out by using Google Meet. Firstly, the students were checked for class attendance and conducted opening with greeting and interactions to activate the atmosphere. Secondly, the students were given introductory material regarding the introduction of Explanation Text such as definition, objective, characteristic, types, generic structure, and examples. Next, the students were asked to recall the Analytical Exposition Text material that had been given. Thirdly, the students were given the explanation about Case-Based Learning method such as definition, objectives, and procedure applied to learning. Next, it started to get into project discussion that was done in the next treatment. The students were divided into 6 groups where each group consisted of 6 members. One person from the group was appointed to be the group leader, and the others served as presentation designers and drafters of the discussion result sheet. After group formation, each group was given a case in the form of an explanation text where each group got a different case. Then, the students were given an explanation about the instructions for working on the project. The instructions are the case in the form of an Explanation Text, all members in the group must collaborate and discuss each other to analyze a case and evaluate possible alternative solutions, all information obtained must be accompanied by references or sources, the results of the discussion are written in the form of an Analytical Exposition Text, PPT is presented per group about 10 to 15 minutes with QnA session (other groups who ask got additional points), and presented pictures or illustrations was considered very good. After that, the students were given time to discuss all the given material beforehand and asked if there were questions about the material or the project to convey until they understood. Lastly, the class ended by reviewing a little material and closing.

The second treatment was conducted on March 28th 2022 at 10.45 – 11.45. This treatment class was carried out by using Google Meet. Firstly, the students were checked for class attendance and conducted opening with greeting and interactions to activate the atmosphere. Secondly, it was a presentation session. The first presentation was done by group 4 which was with case about corruption. The second presentation was done by group 6 which was with case about fast food. The third presentation was done by group 2 which was with case about obesity. The last session of each group's presentation is a Question and Answer (QnA) session where the answers to the questioner are distributed to the class group because time is very limited. Thirdly, in recent times, the students had received responses such as comments, suggestions, and

criticisms of the presentation result and also the discussion result sheet. After that, the students were given time to discuss all the the given material beforehand and asked if there were questions about the material or presentation to convey until clear. Lastly, the class ended by reviewing a little material and closing.

The purpose of the tests was to find out whether the use of CBL is effective or not in improving students' critical thinking skill in the eleventh grade at SMA N 2 Semarang in academic year 2021/2022. The results of the study showed that students' post-test in both the experimental and control class is lower than of the students' pre-test. It means that the treatment in the experimental class cannot influence reading comprehension on analytical exposition text and is considered not effective. The results of study shows that the use of Case-Based Learning is not effective or does not show significant change which probably be due to several things or reasons including, 1) the treatment was given through online class in accordance with school rules at that time. The treatment was lesser than the scheduled time. 2) Lack of monitoring of student participation or activity during the treatment. This is evidenced when students must turn on the camera when present and during presentations but in application reality the students turn off the camera, and as a result only a few and most of the same students interact. 3) The limited interaction that was carried out in the online class so that they cannot control each other. This is evidenced that there were students who complain that their team mates in their group did not participate in projects outside of lesson time. 4) Treatments that were carried out online and within little time lead to a lack of properly controlling student understanding. This is evidenced by some students who asked questions repeatedly about things that have been explained and discussed beforehand during online classes but then were asked again outside of lesson time.

CONCLUSION

Based on the previous results, it could be concluded that the use of Case-Based Learning could not improve students' reading comprehension especially on Analytical Exposition text. From the result, there was not a significant difference in students' mean reading scores between experimental class which is taught by using CBL and control class which is taught not by using CBL. The calculation shows that the use of Case-Based Learning is not effective to improve the eleventh grade students' reading comprehension especially on analytical exposition text. Based on the explanation of several things or reasons for the ineffective use of Case-Based Learning in this study, several suggestions can be made, including, 1) Giving treatment using the Case-Based Learning method is carried out directly in the classroom with real interaction so that it can be monitored as a whole how students discuss and complete the given project. 2) The treatment must be given in sufficient time in accordance with the flow of treatment carried out. 3) Giving treatment can be preceded by a motivational reference so that when the treatment takes place the students can be active naturally because they have enjoyed it. 4) The teacher may look for another strategy which can make the students interested and enjoy in English learning, then the students have to practice the reading more frequently and learn vocabularies more which can lead to a high level of English reading ability. According to the results, it hopes that this study could provide a beneficial contribution in the learning and teaching process. This study is expected to be useful for English teacher of eleventh grade students in teaching and learning reading comprehension especially on analytical exposition text.

FIGURES AND TABLES

Table 1. The Result of Pre-Test Standard Normality

		Tests of Normality		
		Kolmogorov-Smirnov ^a		
	Kelas	Statistic	df	Sig.
Hasil	Pre Test Experiment	.142	36	.063
Belajar	Pre Test Control	.136	36	.089

Table 2. The Result of Pre-Test Standard Homogeneity

		Test of Homogeneity of Variance			
		Levene	df1	df2	Sig.
		Statistic			
Hasil	Based on Mean	2.093	3	140	.104
Belajar	Based on Median	1.485	3	140	.221
	Based on Median and with adjusted df	1.485	3	128.040	.222
	Based on trimmed mean	1.942	3	140	.126

Table 3. The result of T-test by using independent sample T-test

		Group Statistics			
	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Hasil Belajar	Experimental	36	64.17	17.260	2.877
	Control	36	57.89	15.871	2.645

		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	Std. Error Difference	95% Confidence Interval of the Difference
									Lower Upper
Hasil Belajar	Equal variances assumed	.882	.351	1.60670		.113	6.278	3.908	-1.516 14.072
	Equal variances not assumed			1.60669	513	.113	6.278	3.908	-1.517 14.073

Table 4. The result of T-test by using independent sample T-test

Group Statistics					
	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Hasil Belajar	Experiment	36	75.11	13.244	2.207
	Control	36	72.22	11.864	1.977

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	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Hasil Belajar	Equal variances assumed	.164	.687	.975	70	.333	2.889	2.964	-3.022	8.799
	Equal variances not assumed			.975	69.168	.333	2.889	2.964	-3.023	8.801

ACKNOWLEDGEMENTS

We thank the English Education Department, Faculty of Language and Communication Science, Sultan Agung Islamic University, and the school to provide support collaboration, and guidance in completing this writing about *Case-Based Learning in Improving Critical Thinking Skill on Reading Comprehension for the Eleventh Grade Students at SMA N 2 Semarang*. Besides, we would like to acknowledge with gratitude the lecturers and the students as the participants of the research who sincerely contributed as the data resources.

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