

The effect community of inquiry assisted by social media on problem-solving ability in education policy courses

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Abstract

This study aims to determine the effect of the Community of Inquiry (CoI) model assisted by social media on problem-solving abilities. This type of research is a Quasi Experiment with Non-Equivalent Control Group Design. As an Experiment Class is the Civics Education Study Program, the treatment of the CoI learning model assisted by Social Media and as the Control Class is the Economic Education Study Program with the treatment of the CoI learning model without assistance. The data were collected using the test technique and observation sheet and analyzed with a t-test at a significance level (α) = 0.05. A value of 3.585 was obtained that the equal variances were not assumed to have a sig. 0.001 is less than 0.05, so H_0 is rejected, and H_a is accepted. Thus, there is a significant influence between the CoI learning model assisted by social media on problem-solving in educational policy courses.

Keywords: Community of inquiry, problem solving, education policy.

Introduction

The purpose of education at the higher education level is to provide learning materials and emphasize how to invite students to discover and build their knowledge to develop life skills and be ready to solve problems faced in life through learning (Suryanto, Degeng, Djatmika, & Kuswandi, 2021). The ability to solve a problem is part of the educational process (Henriksen, 2019; Kaya & Acar, 2019). Problem solving ability is better done by providing hands-on experience in learning practices in the classroom and outside the classroom (Dash, 2021; Penuel, Turner, Jacobs, Horne, & Sumner, 2019; Suryanto, Warring, Kartikowati, Rorimpandey, & Gunawan, 2021; Yusuf, Tarumasely, Suryanto, & Machsunah, 2021). Learning experts state that problem-solving abilities within certain limits can be formed through the fields of study and disciplines being taught. Basic concepts of public policy, necessary national education policies, strategic plans for national education and selective capital education issues (Anam, Nyoman Sudana Degeng, Murtadho, & Kuswandi, 2019; Degeng, 2013; Durlak, Weissberg, & Pachan, 2010; Huang, 2019). The expected learning outcomes are students can identify, formulate and formulate problem solving in education and achieve national education goals (Chen, Retnowati, & Kalyuga, 2019; Liu & Liu, 2019; Touw, Vogelaar, Thissen, Rovers, & Resing, 2019). The achievement of learning objectives, concerns the learning outcomes of appropriate learning models (Arends, 2012a; Bandura, 1982; Suryanto, Degeng, et al., 2021).

In a learning there is an interactive process that involves several learning components. There are lecturers, students, teaching materials, learning environment, media, models, learning strategies, etc. (Arends, 2012b; Suryanto, Warring, et al., 2021). For now, due to technological advances, technology-based teaching materials and learning media (Powell & Bodur, 2019; Yeh, Rega, & Chen, 2019). Teaching materials can be presented in various ways. One of them is by utilizing online programs (Al

The effect community of inquiry assisted by social media..... (Sutarum, Zaman, Machsunah)

Shlowiy, Al-Hoorie, & Alharbi, 2021; Awwad, Ayes, & Awwad, 2013; Yeh et al., 2019). The achievement of learning objectives must be supported by the education system. A fair learning process and the availability of adequate facilities and infrastructure, a healthy academic environment and the achievement of a professional academic community (Demir, 2018; Oh & Park, 2020).

The CoI learning model is a learning model that provides space for students to be actively involved in learning groups in solving problems in order to achieve learning objectives (Elbaz, 1992). There are three elements in the CoI framework, namely cognitive presence, social presence, and teaching presence. Each of these elements carries out investigative activities in learning, the ability to interact in communication to support and maintain face-to-face investigations and online teaching (Barnes, 2020; Garrison & Kanuka, 2004). The CoI learning model emphasizes that students can be active in their learning communities by utilizing various media assistance and learning tools so that they can improve problem solving abilities and students' social development wherever they are (An, 2018; Dash, 2021; Huang, 2019). Currently, the development of science and technology has contributed a lot to the world of education (Luik & Lepp, 2021; Powell & Bodur, 2019). One example is learning materials that can be easily accessed through social media networks. Because technology can help in achieving learning goals (Adi, Saefi, Setiawan, & Sholehah, 2021; Mochizuki et al., 2019).

However, many learning processes do not keep pace with technological developments, which in recent decades have experienced rapid growth in the education system in Indonesia. In this case, the lecturer as the organizer of learning activities on campus must optimize learning activities. A successful lecturer is not only a charismatic presenter of material but must involve students in tasks that require cognitive and social content and guide students to complete lecture assignments productively. Based on this background, the formulation of the problem in this study is: Is there any influence of the Community Of Inquiry (CoI) model assisted by social media on problem solving abilities and how to implement (CoI) in the education policy of PGRI Adi at Buana University, Lamongan campus.

Method

However, many learning processes do not keep pace with technological developments, which in recent decades have experienced rapid growth in the education system in Indonesia. In this case, the lecturer as the organizer of learning activities on campus must optimize learning activities. A successful lecturer is not only a charismatic presenter of material, but must involve students in tasks that require cognitive and social content and guide students to complete lecture assignments productively. Based on this background, the formulation of the problem in this study is: Is there any influence of the Community Of Inquiry (CoI) model assisted by social media on problem solving abilities and how to implement (CoI) in the education policy of PGRI Adi at Buana University, Lamongan campus.

Result

After treatment both in the experimental class in the PPKn study program and in the control class in the Economic Education study program in the education policy course, the mean value of the pre-test and post-test data was obtained as in table 1 below:

Table 1. The results of the pre-test and post-test of the experimental class and the control class

Class	Related data	Related data
	Pretest	Post-test
Experiment	39	84
Kontrol	45	75

In the pre-test, the mean value was 39 in the experimental class and 45 in the control class. Meanwhile, in the post-test, the score was 84 in the experimental class and 75 in the control class. It can be seen that there is an increase in scores in both the experimental class and the control class. However, the increase in scores was higher in the experimental class by treating the CoI model assisted by social media than the control class without social media assistance.

At the completion stage in problem-solving with indicators: first, students show an understanding of the problem, the two students can choose alternatives to problem-solving. The three students can solve the problem, and finally, the students check what has been produced. Meanwhile, the percentage value of post-test data for the experimental class and control class can be seen in Table 2 below:

Table 2. The presentage results of post test score in Experimental and Control class for each problem solving stage)

NO	Step Inner settlement Solution Problem	Prosentase (%)	
		Data Post Test	
		Class Experiment	Class Kontrol
1	Show understanding there is a problem	90	86
2	Choose alternative Solving Problem	85	83
3	Complete Problem	75	66
4	Check back	67	51
	TOTAL	317	286
	AVERAGE	79,25	71,5

Based on the problem-solving stage of the policy education, the experimental class showed a higher mean score of 79.25 compared to the control class with a mean value of 71.5. In the experimental class, the CoI model is assisted by social media, while the control class is without assistance. Based on the data from each meeting for the implementation of learning, a graph can be displayed for the average of each learning activity meeting. The results can be seen in Figure 1.

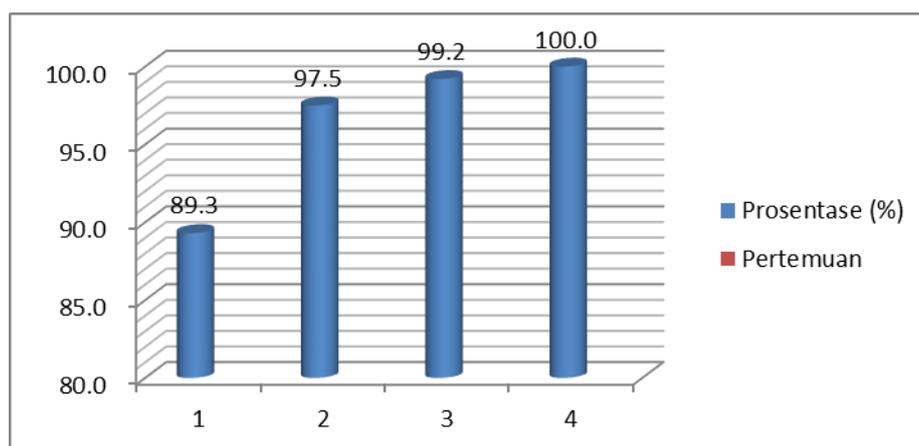


Fig. 1. Graph of the mean percentage value of learning implementation observations for each meeting

The percentage of observations of student activity during learning with four meetings on educational policy courses using the CoI model assisted by social media in the experimental class can be seen in Table 3 below:

Table 3. The Value of Observation of Student Activities in Educational Policy Courses

Group	Total Descriptors Maximum	Number of Descriptors who are looked at the meeting			
		1	2	3	4
1	210	100	140	150	176
2	210	120	133	153	174
3	252	141	169	205	218
4	210	125	140	168	185
5	210	116	136	162	185
TOTAL	1092	602	718	838	938
PRESENTASE (%)		55	66	77	86

Data from student activity observations can also be supporting data to strengthen the results of this study. Based on observing student activities, researchers can find out how active and enthusiastic students are in lectures. It is because students have an active and enthusiastic role in lectures, more independent learning abilities, and can develop problem-solving abilities as well.

Based on table 3 regarding the value of student activity observation, it is known that through the CoI model assisted by social media, student activity during the lecture process has always increased from each meeting. And the increasing student activity is also able to influence problem-solving abilities. To find out influence of the social media-assisted CoI learning model on problem-solving, the post-test data in the experimental class and the control group were tested with the t-test, as shown in table 4 below::

Table 4. Samples Test Experiment Class and Control Class

	Group Statistics				
	Treatment	N	Mean	Std. Deviation	Std. Error Mean
Problem_Solving	1	26	83.27	7.640	1.498
	2	28	75.46	8.360	1.580

Table 5. 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
Problem solving	Equal variances assumed	1.232	.272	3.572	52	.001	7.805	2.185	3.421	12.189
	Equal variances not assumed			3.585	51.989	.001	7.805	2.177	3.436	12.174

Based on the table, the t value is 3.585 on equal variances. It is not assumed to have a sig. 0.001 is less than 0.05, so Ho is rejected, and Ha is accepted. Thus, there is a significant influence between the CoI learning model assisted by social media on problem-solving in educational policy courses.

Discussion

learning with the CoI model with the help of social media, can help solve problems in education policy. The Research Community in carrying out its activities involves interaction between group members and this is a good experience for students in solving problems so as to improve their skills (Corbett, 2005; Perignat & Katz-Buonincontro, 2019; Suryanto, Degeng, et al., 2021). Collaboration between individuals will make students feel responsible and active in constructing and confirming meaning, so that they will be involved in the process of empirical and conceptual inquiry into problem solving situations. The CoI model assisted by social media can help students solve problems in learning materials and can explore these topics through discussions with their study groups (Groot, Schrijver, & Abma, 2021; Husu & Tirri, 2007; Xue & Churchill, 2019). Social media is useful in learning because almost everyone is familiar with social media. Social media can also be a medium of communication in learning if it is managed properly with clear boundaries and rules in its implementation (Demir, 2018; Lobato, Powell, Padilla, & Holbrook, 2020). The use of social media is very effective in helping the learning process because it is easy to use and useful if managed properly (Jenkins, Zaher, Tikkanen, & Ford, 2019; Valdez, Datu, & Chu, 2021).

Conclusion

Based on the results of research on the influence of the social media assisted CoI model on student problem solving abilities in educational policy courses, the first conclusion can be drawn. There is an influence of the social media assisted CoI model on student problem-solving abilities in educational policy courses. The average post-test results obtained by the experimental class and control class students were 84 and 75; it was seen that the post-test average achieved by the experimental class was higher than the control class. Based on data that was processed using a value of t, it was obtained 3.585 on equal variances not assumed to have a sig. 0.001 is less than 0.05, so Ho is rejected, and Ha is accepted. Thus, there is a significant influence between the CoI learning model assisted by social media on problem-solving in policy education courses. The implementation of the CoI model in the policy education course for each meeting has always increased, seen from the observation sheet on the implementation of learning and student activities

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The effect community of inquiry assisted by social media..... (Sutarum, Zaman, Machsunah)

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