International Journal of Scientific Engineering and Science
Volume 5, Issue 9, pp. 11-13, 2021. ISSN (Online): 2456-7361

Application of Problem Based Learning Model on Collaborative Affective Learning Outcomes

Lamijan Hadi Susarno[1], Rusijono[2], Bachtiar S Bachri[3], Fajar Arianto[4]
[1, 2, 3, 4]Universitas Negeri Surabaya, Surabaya, Indonesia

Abstract— *The demands for abilities in the 21st century, namely critical thinking, communication, collaboration and creativity, are a challenge for educators to emphasize students' attitudes so that they have strong characteristics. This demand leads to one learning model that can encourage students to answer it, namely the problem-based learning model. The purpose of this study was to determine the effect of problem-based learning models on collaborative affective learning outcomes. The research used is a weak experiment with a nonequivalent control group design. Participants in this study amounted to 170 students who were divided into two, the experimental group and the control group. The analytical technique used is to compare the two groups through a t-test. The results showed that there was a positive effect of the problem based learning model on student collaborative affective learning outcomes*.

Keywords— *Problem based learning, affective, learning outcomes, collaborative*.

I. INTRODUCTION

Currently, education has a focus on realizing the characters needed to face future challenges. According to Sulistyaningrum, Winata and Cacik (2019), the abilities that must be possessed by students in the 21st century are critical thinking, communication, collaboration and creativity. Attitude is one of the aspects assessed in the IQF such as discipline, mutual cooperation, honesty, collaboration, confidence, courtesy, courtesy, responsibility and tolerance. Individual character is reflected in the attitude he has. These characters can be obtained through learning. Learning models are needed in learning so that messages can be conveyed properly. However, not all learning models are in accordance with the characteristics of the learning material. One of them is the basic educational material taught at state universities in Surabaya which has material characteristics according to the problem-based learning model.

The times require education to adapt with the support of appropriate technological advances. One form of educational adaptation to the times is the learning model. Changes in attitudes and knowledge in education can be achieved by using a methodology in education, one of which is the learning model. There are many kinds of learning models used in learning in Indonesia, one of which is problem-based learning.

The problem-based learning model is a learning model that uses real-world problems as a context to train critical thinking, problem-solving skills and the acquisition of essential concepts and knowledge in learning materials (Maryati, 2018). The existence of contextual problems requires students to think creatively in solving existing problems, as stated by Mustaji (2017: 73) learning creativity is widely grown in problem-based learning models. This indirectly affects the function of learners and learners, learners function as stimuli and guide and provide direction to learners in order to solve problems. Mustaji (2017: 73) states that problem solving is everything that is done to find the completion of tasks and situations in various angles of human activity by using the knowledge they already have.

Solving a problem requires an analytical process. Analysis in learning aims to determine the relevant and important parts of a message, organize the important parts of a message and interpret the basis of the message. Analysis is an extension of understanding and the beginning of evaluation and creation activities. Learning has six levels of ability, namely knowledge, understanding, application, analysis, evaluation and creation. Meanwhile, higher order thinking skills exist at the stages of analysis, evaluation and creation. Higher order thinking skills occur through individuals in organizing activities and developing new information with the information they already have in order to achieve goals and solve problems they face.

Collaborative affective learning outcomes can be grown through a problem-based learning model. This is evidenced in research which states that students will tend to learn a lot of material and remember it longer in learning in small groups, meaning that the material will be remembered and understood if students are actively involved in learning compared to just listening without direct involvement in understanding. material (Warsono and Hariyanto, 2012: 66-67). This learning is included in collaborative learning, as described by Barkley, Cross and Major (2012: 5), namely a learning strategy by creating student study groups and involving group members' cooperation in achieving predetermined goals so that learning becomes meaningful.

In the 21st century, a learning model that is in accordance with the times and the skills needed in work is a problem-based learning model that is expected to enable students to develop independent character in learning and high-level thinking so as to foster collaborative affectiveness in solving problems at hand. Then conducted research on the effect of problem-based learning model on collaborative affective learning outcomes.

II. METHOD

The research used was a weak experiment with a nonequivalent control group design model aimed at comparing the problem-based learning model applied to the experimental class with the conventional learning model in the control class.

The participants of this study were 170 students who were divided into two experimental and control groups. The experimental group consisted of 85 students, and the control group consisted of 85 students.

Collaborative affective learning outcomes were collected using a closed questionnaire to determine the effect of the application of problem-based learning models on collaborative affective learning outcomes given to students. The lattice of collaborative affective assessment instruments are acceptance, participation, attitude determination, organization and development/formation of patterns. Before being applied or tested, the two variables were tested for feasibility using a questionnaire instrument given to the experts. The data analysis technique used in this study is to compare the experimental group with the control group by using the t-test.

III. Result And Discussion

Table II shows the problem-based learning model showing a significant value (two tails) 0.000 (<0.05). The results of data analysis concluded that there was a positive effect of the problem based learning model on the results of collaborative affective learning. Students who are taught using the problem based learning model show better collaborative affective learning outcomes than those taught conventionally. Table I shows that the average student with the problem based learning model is 78.05 and students who are taught conventionally have an average of 48.89.

TABLE I. Mean Result of Problem-Based Learning on Collaborative Affect

	Afektif_Coll	
	Model	
	PBL	Conventional
N	85	85
Mean	78.05	48.89
Std. Deviation	6.640	7.111
Std. Error Mean	.720	.771

TABLE II. Results of Problem-Based Learning Analysis on Collaborative Affect

			Afektif_Coll	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		.495	
	Sig.		.483	
t-test for Equality of Means	t		27.625	27.625
	df		168	167.217
	Sig. (2-tailed)		.000	.000
	Mean Difference		29.153	29.153
	Std. Error Difference		1.055	1.055
	95% Confidence Interval of the Difference	Lower	27.070	27.069
		Upper	31.236	31.236

This is in line with research conducted by Yuliani, Huriah and Primanda (2017) which states that the 5E cycle model with a combination of PBL can significantly improve learners' affectiveness. The results prove that affective improvement occurs in the intervention group using the 5E cycle model in combination with PBL compared to the control group using conventional learning methods, but the increase is not significant. Problem investigations can be easily found from the presentation of authentic and meaningful problems for students in the PBL model. This statement is supported by the statement of Gorghiu et al. (2015) that PBL is a learning that makes it easier for students to build basic abilities in various fields of knowledge effectively because this learning also has a basis of inquiry. PBL stated by Arends (2008) proves that the learning model can develop students' knowledge, abilities and higher inquiry, learning independence and increasing self-confidence through authentic and meaningful problem-based learning.

Enthusiasm and taking an active role in every step of learning, giving positive responses in group discussions, and supporting each other in expressing opinions in discussions, these are signs of an increased affective value in the PBL model. The enthusiasm given by students is only at the beginning of learning but after 20 minutes of learning with the lecture method, students will feel bored in learning and choose to communicate with their friends and ignore the educator. This is a sign of a decrease in affective values in conventional learning models. Djamarah and Zain (2013) stated that the lecture method makes students passive in learning. The boredom and passiveness of students in conventional learning models, especially lectures, are caused by teacher-centered learning so that there is no opportunity for students to think critically and creatively.

The PBL model stated in Apriyani's research (2018) is effective in its use for thinking skills training. The PBL model encourages students to construct their knowledge through scientific communication in group learning and has the ability to assess their personal learning progress.

IV. Conclusion

The use of the PBL model in teaching basic education courses significantly improves collaborative affective learning outcomes compared to the conventional model with the lecture method. This is due to the opportunity for students to build their knowledge through solving problems in groups. Group discussion is a collaborative action in order to achieve the learning objectives that have been determined. This action also creates learner-centered learning. Meanwhile, the lecture method is an educator-centered learning so that there is no opportunity for students to think critically or creatively for the development of their own knowledge and students will quickly feel bored and result in indifferent to the explanation of the material by the teacher.

References

[1] Apriyani, S. (2018). Pengaruh Problem-based leraning disertai Peta Konsep terhadap Kemampuan Berpikir Kritis dan Afektif Peserta Didik Kelas X SMA (Quasi Eksperimen pada Peserta Didik Kelas X MIA Semester 1 SMA Negeri1 SeputihAgung Tahun Ajaran 2018/2019). *Repository Raden Intan*.
[2] Arends, R. (2008). *Learning to Teach.* Yogyakarta: Pustaka Pelajar.
[3] Arends, R. (2012). *Learning to Teach.* New York: McGraw-Hill.
[4] Bachri, B. S. (2010). *Pengembangan Model Pembelajaran Non Direktif Berbasis Masalah untuk Meningkatkan Kemandirian Belajar Mahasiswa.* Bandung: Sekolah Pasca Sarjana Universitas Pendidikan Indonesia.
[5] Barkley, E, E., Cross, Patricia, K., Major, & Howell, C. (2012). *Collaborative Learning Techniques.* Bandung: Penerbit Nusa Media.
[6] Baron, R., & Byme, D. (2003). *Psikologi Sosial.* Jakarta: Erlangga.

[7] Djamarah, S. B., & Zain, A. (2013). *Strategi Belajar Mengajar*. Jakarta: Rineka Cipta.
[8] Gorghiu, G., Draghicescu, L. M., Cristea, S., & Petrescu, A.-M. (2015). Problem-based Learning - An Efficient Learning Strategy in the Science Lessons Contex. *Procedia-Social and Behavioral Sciences*, 1865-1870.
[9] Johnson. (1986). *Teori Sosiologi Klasik dan Modern.* Jakarta: Gramedia.
[10] Johnson. (1986). *Teori Sosiologi Klasik dan Modern.* Jakarta: Gramedia.
[11] Maryati, I. (2018). Penerapan Model Pembelajaran Berbasis Masalah pada Materi Pola Bilangan di Kelas VII Sekolah Menengah Pertama. *Mosharafa*, 63-75.
[12] Mustaji. (2017). *Model dan Desain Pembelajaran: Teori dan Implementasi Problem Based Learning dan Collaborative Learning.* Surabaya: Unesa University Press.
[13] P, D. (1999). *Collaborative Learning: Cognitive and Computational Approaches. Advances in Learning and Instruction Series.* New York: Elsevier Science, Inc.
[14] Sockalingam, Nachamma, Schmidt, & G, H. (2011). Characteristics of Problems for Problem-Based Learning: The Students Perspective. *The Interdisciplinary Journal of Problem Based Learning*.
[15] Sulistyaningrum, H., Winata, A., & Cacik, S. (2019). Analisis Kemampuan Awal 21st Century Skills Mahasiswa Calon Guru SD. *Jurnal Pendidikan Dasar Nusantara*, 142-159.
[16] Warsono, & Hariyanto. (2012). *Pembelajaran Aktif Teori dan Assesmen.* Bandung: PT Remaja Rosdakarya.
[17] Yuliani, N., Huriah, T., & Primanda, Y. (2017). Pengaruh Siklus Belajar 5E Kombinasi Problem Based Learning (PBL) terhadap Peningkatan Kohnitif, Afektif, Psikomotor pada Mahasiswa Diploma Keperawatan. *Indonesian Journal of Nursing Practices*.