

THE EFFECT OF PROBLEM-BASED LEARNING (PBL) METHOD ON STUDENTS CRITICAL THINKING SKILLS ON ENTREPRENEURSHIP PRACTICE COURSE (A STUDY ON ECONOMICS EDUCATION DEPARTMENT IN THE COLLEGE OF EDUCATION AND TEACHERS' TRAINING PGRI JOMBANG EAST JAVA INDONESIA)

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ABSTRACT

Problem-based learning (PBL) method is designed to provide knowledge and skills demanded for a job requirement. The ability to continuously learn is needed in solving new problems and challenges and thus an ever-evolving ability is absolutely needed. This study aims to reveal the effect of the PBL on students' critical thinking ability in entrepreneurship practice course at Economics Education Department of the College of Education and Teachers' Training PGRI Jombang East Java Indonesia. It employed quantitative research. The data was collected by observation and questionnaire. The sample in this research was 32 college students majoring in Economics Education Department of 2015 batch at the College of Education and Teachers' Training PGRI Jombang. It applied simple linear regression test for data analysis. The finding showed that the significance of t-test and F-test is less than Alpha coefficient, $0.000 < 0.05$. It implied that there is significant effect of PBL method on students' critical thinking ability on entrepreneurship practice course of Economics Education Department of the College of Education and Teachers' Training PGRI Jombang East Java Indonesia.

Keywords: Problem Based Learning Method, Critical Thinking Ability.

INTRODUCTION

University as an educational institution is a centre of development. Thus, it is expected to be able to create quality and professional human resources. However, the reality is still far beyond the expectation as there is still very few numbers of human resources having broader and deeper concept of knowledge. The current world needs people with a lot of capabilities such as understanding and using different ways of thinking, research, problem solving, critical thinking and creativity. Critical thinking is one of the aspects of thinking that has been accepted as a way to overcome the difficulties and to facilitate the access to information in life (Derminhan, 2011) According to Cabera in Husnidar (2014, p. 72), it is stated that the ability to think critically is one of the competencies to be achieved as well as the tools necessary in developing the process of lecturing in class.

The successful of teaching and learning process in university is now more focused on the effort in maximizing students' ability so all learning will be managed to be student-centred way. In learning process, lecturer serves only as a facilitator and also a motivator in the learning

process. However, this ideal still has not been achieved optimally. This is because there are still many lecturers who still implement conventional learning process so students are accustomed to listening to lectures delivered by the lecturers. In other words, the learning process conducted is still teacher-centred in nature. This one-way learning will not be able to empower students' skills in critical thinking.

Based on the observations, it was found out the fact that students think that entrepreneurship practice course is less interesting course, even it is considered unimportant and it is also felt less useful for students' academic development. This happens because the understanding of the content, meaning and objectives of learning and the entrepreneurship practice have not been understood deeply. Consequently, the students assume this course is not so important. In fact, entrepreneurial practice is an important course because students can explore themselves into creative, innovative and independent human resources.

Considering the importance of learning motivation and the development of life skills in a teaching and learning process in Higher Education, it is necessary to develop a learning method that can help lecturers develop critical skills. The problem-based learning method has been described as an appropriate method for constructivist approach since it allows students to associate their previous knowledge with newly acquired knowledge while working in cooperative groups to solve a daily life problem (Inel and Balim, 2010). This method is a student-centred learning method that stimulates students to acquire and apply the knowledge and skills they need including problem solving (Barrows & Neo Lynda, 2007, p. 1).

The Problem-Based Learning (PBL) method is designed to provide the required knowledge and skills for a job and to support those who want to continue their learning by providing skills needed to solve new problems and challenges and to have an ever-expanding ability. (Barrows & Neo Lynda, 2007, p. 1). Therefore, the effect of using PBL is expected to improve student problem solving ability in the field of entrepreneurship practice course. In addition, problem-solving activities help students to construct new knowledge and facilitate science learning (Mukhopadhyay, 2013). To face the challenges of the 21st century, it is better for the lecturers to prepare students to be an investigator, problem solver, critical and creative thinkers (Barell, 2010).

In learning science, in addition to teaching to understand knowledge and apply it to new things, teachers also need to teach their students ways of developing problem-solving skills so they will be accustomed to thinking scientifically in everyday life (Elvan, 2010). In order to teach the development of student problem-solving skills, a lecturer must have optimal problem-solving ability.

The ability to solve problems is very important for students as it is required for their profession and it also supports the success of their careers (Duong, 2012). Thus, it is necessary to implement a learning process that can optimize the problem solving ability of students in the entrepreneurship practice course. To achieve the goal optimally then a lecturer is required to be able to apply the learning method that can foster the ability of students not only on knowledge but on the ability to think critically, creatively, analytically, systematically and logically.

One of the learning methods which are alleged to activate and develop students' critical thinking ability is Problem-Based Learning (PBL) method. This method can encourage and train students to think critically and work rather than memorize things. This will certainly develop students' skills to always think critically. This is in line with a research conducted by Susanto (2015), arguing that learning using PBL can improve students' creative thinking ability. Therefore, the effect of Problem-Based Learning (PBL) method is expected to be able to

improve students' critical thinking skill of Economic Education Department of 2015 batch at an entrepreneurship practice course. The improvement occurs because Problem Based Learning (PBL) method facilitates students to actively learn independently by using object of entrepreneurship practice directly.

LITERATURE REVIEW

Problem Based Learning Method

Problem-Based Learning (PBL) is a motivating, challenging and enjoyable learning approach (Norman and Schmidt, 2000) that has resulted from the process of working towards understanding or resolving a problem. PBL was first introduced in the McMaster University in Canada in 1965. Soon after that, in 1974, the McMaster medical school PBL model was established. This model encouraged other universities to implement a similar design into their curriculum. Since then, PBL has been popularized and used in several higher educational institutions across the world, such as in Australia, Denmark and China (Kolmos et al., 2007).

Barret (2005) defines PBL as "the learning that results from the process of working towards the understanding of a resolution of a problem. The problem is encountered first in the learning process". Meanwhile, Cunningham et al. (2000), Chasman et al. (2003) define PBL as a teaching strategy that simultaneously develops problem solving strategies, disciplinary knowledge and skills by placing students in the active role as problem-solvers confronted with a structured problem which mirrors real-world problems.

Thus, PBL is a learning approach that uses real-world problems as a context for learners to learn about critical thinking and problem-solving skills and to acquire essential knowledge and concepts from a course material or a subject matter.

Critical Thinking Skill

To think critically, one requires a clear and rational mind and follows the rules of logic and scientific reasoning above all so that one could determine the right reasons in making decisions. As said by Lau (2011, p. 1), "Critical thinking is thinking clearly and rationally. It involves thinking precisely and systematically and following the rules of logic and scientific reasoning, among other things."

According to Iskandar (2009, p. 86-87) thinking is a reflective, critical and creative reasoning activity, oriented to an intellectual process that involves conceptualizing, applying, analysing, assessing information collected (synthesized) or generated through observation, experience, reflection, communication as the basis for a belief and action. Thinking is a personal human activity that leads to a discovery that is directed to a goal. We think to find the understanding on what we want.

Sapriya (2011, p. 87) argues that the purpose of critical thinking is to test an opinion or idea. This includes the process of considering or thinking based on the opinion proposed. The purpose of critical thinking is to judge a thought, interpret its value and even evaluate the implementation or practice of such thoughts and values. Even critical thinking involves considering activities based on known opinions. According to Lipman in Elaine Johnson (2002, p. 144), it is stated that these considerations should be supported by accountable criteria. Elaine

Johnson (2002, p. 185) also states that the objectives of critical thinking is to achieve a deep understanding.

Based on the aforementioned definitions, it can be concluded that critical thinking ability is the power of thought that must be built on students so that there is a predetermined character or personality in one's life to solve all problems of life by identifying any information received then by doing so they are able to evaluate and then sum it up systematically which at the end they are able to express their opinion in an organized way.

Entrepreneurship

Since the 1980s, entrepreneurship has emerged as a topic of growing interest among management scholars and social scientists. The subject has grown in legitimacy, particularly in business schools (Cooper, 2005). According to The Quality Assurance Agency for Higher Education (2012), entrepreneurship is defined as the application of enterprise skills specifically to creating and growing organizations in order to identify and build on opportunities. It implies that an entrepreneur is a person who has the ability to create something new, different from the others or able to create something different from pre-existing ones. Entrepreneurs have a role to look for new combinations that combine innovation (finding new markets, introducing new ones, new production methods, providing new raw materials and new industry organizations). The similar idea with Hidayat (2009) who argues that entrepreneurship, a superior personality that reflects the noble mind and an exemplary character because on the basis of one's own ability, someone can open work opportunity for the sustainability of humanity based on truth and goodness. They have passion and the ability and the mind to conquer unchanging ways of thinking and have the ability to withstand social positions.

Entrepreneurship is an essential element for economic progress as it manifests its fundamental importance in different ways: a) By identifying, assessing and exploiting business opportunities; b) by creating new firms and/or renewing existing ones by making them more dynamic; and c) by driving the economy forward—through innovation, competence, job creation and by generally improving the wellbeing of society (Coviello & Jones, 2004). Entrepreneurs are people who have the courage to take risks to open a business on various occasions. They dare to take risks means that they have independent way of thinking and they are dare to start a business, without fear or worried even though it is in an uncertain conditions (Kasmir, 2007, p. 18).

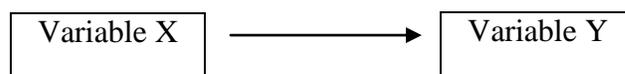
Entrepreneurship has an important role in the creation and growth of businesses and in the growth and success of countries (Hisrich et al., 2013, p. 6). Almost all explanations for business and for capitalism itself rely on entrepreneurship as a cornerstone. Entrepreneurship takes a number of forms and it appears in both small and big businesses, in new and established businesses, in the formal and informal economies, in legal and illegal activities, in innovative and conventional cases and in all regions and economic sectors. (Westhead et al., 2011. p. 3) Entrepreneurship is the key driver to economic development. Governments and academics intend to encourage entrepreneurship due to its importance to employment creation and GDP (Ahmad 2010, p. 203).

In facing the global market, in the industrialization era in the future, the role of entrepreneurship is crucial. Therefore, the spirit, attitude, behavior and ability in the field of entrepreneurship and entrepreneur should be grown up in all levels of society, organizations, including students in colleges.

RESEARCH METHODS

Research Design

This research employed quantitative approached and simple linear regression test for analysing the data. It aims at revealing whether there is an effect of Problem-Based learning (PBL) method on students' thinking skill on entrepreneurship practice subject. The sample was 32 college students of Economics Education Department. The methods of data collection used are observation, questionnaires and documentation. The independent variable in this study was Problem-Based Learning method and the dependent variable is students' critical thinking ability. The research is assisted by SPSS program. Furthermore, the research design is as follows:



Meanwhile, Simple Linear Analysis Test is used to know the influence of one independent variable (X) with one dependent variable (Y). Later, this research will also reveal whether there is an effect of Problem Based Learning method on students' critical thinking ability on entrepreneurship practice course. The linkage of (X) and (Y) variables is described using the following formula: $Y = \beta_0 + \beta_1 X$

Explanation

Y = Dependent Variable

X = Independent Variable

β_0 = Constants

β_1 = Slope

Findings and Discussion

To know whether there is an effect of problem based learning method on students' critical thinking skill on entrepreneurship practice course, the researcher employed simple linier regression test. The results of calculation are shown in the following output:

	Mean	Deviation Std.	N
Using PBL method	86.8750	7.80302	32
critical thinking ability	72.5000	4.39941	32

Table 1 showed using PBL method variable with the number of cases (N) =32 has the mean of 86.8750 and the deviation standard=7.80302. Critical thinking variable with number of cases (N) =32 respondents; has a mean of 72.5000 and deviation standard=4.39941.

		Using PBL method	Critical Thinking Ability
Pearson Correlation	Using PBL method	1	0.705
	critical thinking ability	0.705	1
Sig. (1-tailed)	Using PBL method	-	0
	critical thinking ability	0	-
N	Using PBL method	32	32
	critical thinking ability	32	32

Based on Table 2 above, variable X with Y obtained values of 0.705 which means there is a very strong relationship between variables namely using PBL method and students' critical thinking skill. Seeing from the value of its significance, the value obtained from using PBL method variable and students' critical thinking skill variables is Sig value. (1-tailed) of 0.000. Then compared to a probability of 0.05 then it is greater than the probability value of Sig. (tailed) or $[0.05 > 0.000]$. It implied that H_0 is rejected and H_a is accepted. It is proven that using PBL method has a relationship with students' critical thinking ability.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.705(a)	0.497	0.480	5.62731	0.497	29.605	1	30	0.000

a. Predictors: (Constant), using PBL Method
 b. Dependent Variable: Critical thinking ability

Table 3 shows that R square coefficient is 0.497. Thus, it can be said that the contribution of learning method of PBL (Problem Based Learning) to critical thinking ability is 49.7% while the remaining 50.3% is influenced by other factors.

No.	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression Residual Total	937.500	1	937.500	29.605	0.000 (a)
2		950.000	30	31.667		
		1887.500	31			

a. Predictors: (Constant), using PBL Method
 b. Dependent Variable: Critical thinking ability

Based on table 4 ANOVA. It is known that F count is equal to 29.605 with significant level $(p)=0.000$. Because the probability is smaller than α then Hypothesis which states there is an effect of PBL (Problem Based Learning) method on students' Critical thinking ability on entrepreneurship practice course is accepted.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Error Std.	Beta		
1	(Constant)	-3.750	16.685		-0.225	0.824
2	Using PBL method	1.250	0.230	0.705	5.441	0.000

a. Dependent Variable: students' critical thinking ability

Based on table 5 the statistical calculation using SPSS program with Simple Linear Regression test obtains the t significant level of 0.005 which is equal to 5.441 and value of F count is equal to 29.605 with level of probability of 0.000. The regression equation is: $Y = -3.750 + 1.25X$. It means that alternative hypothesis stating that there is an effect of PBL method on students' critical thinking skill on entrepreneurship practice course at Economics Education Department of the College of Education and Teachers' Training PGRI Jombang East Java Indonesia of STKIP PGRI Jombang.

DISCUSSION

The statistical calculation using SPSS program employing Simple Linear Regression test with significant level of 0.005 shows that the t count value obtained is 5.441 and value of F count is 29.605 with level of probability of 0.000. It means that alternative hypothesis stating there is an effect of PBL method on students' critical thinking skill on entrepreneurship practice course of Economics Education Department of the College of Education and Teachers' Training PGRI Jombang East Java Indonesia.

Critical thinking can be viewed as a students' thinking ability to compare two or more of the information. If there are differences and similarities, then they will ask questions or comments with the aim to get an explanation. The ability to think critically reflects the ability to make a rational judgment in the use of concrete evidence.

The results showed that the use of PBL method is able to improve students' thinking skill. The PBL method gives students the flexibility to process all their knowledge and seek new knowledge needed to form new knowledge formed by the students themselves as a result of the process of mutual understanding of old and new knowledge. The students become an independent learner and critical thinker when they analyse, evaluate and synthesis information from a variety of sources and present their own justified interpretation related to the case of Entrepreneurial activities. This is known as employing 'higher order thinking skills'. This is in line with a research conducted by Ariyati (2015, p. 349) stating that the PBL method is able to significantly improve students' critical thinking ability. Furthermore, the present research support the results obtained by Henderson (2010) which indicate that there is significant difference in students' critical thinking skill between a PBL-applying class and a traditional class. Henderson finds that the PBL class is higher in level of analysis, evaluation and induction skills compared to the traditional one.

The implementation of PBL in Entrepreneurship practice course aims at improving students' critical thinking. In PBL, critical thinking ability is possibly raised through several processes such as discussion, brainstorming session, debate session, interaction, reflection and feedback (Masek and Yamin, 2012). Furthermore, critical thinking skill appears when students

are accustomed to solving problems in their daily lives. This will be initiated by first identifying the problems encountered using some elements namely examining problems encountered in entrepreneurship and then they will be able to create their creativity in thinking about the solutions on the problems faced.

The result of observation revealed that through PBL, it is easy for students to find a solution by organizing problems, namely by sorting out a problem and then grouping the problem in detail and combining the problems with one another so that students are able to think to solve problems in an organized manner and it should be followed by preparing some facts required. Furthermore, students will do an analysis from existing problems and existing facts so that they find the outline in preparing the argument. However, it is showing the early problem is that students sometimes confused to understand the proposed problems. Therefore, the problem presented should not be a problem stated as a question for it should be an actually occurring problem related to entrepreneurial issues.

Problem-Based Learning Method is a learning method that can improve students' acquisition of learning outcomes, retention, interpersonal skills and better thinking skills. Therefore, this learning method can be used as an alternative learning method to improve students' critical thinking skills.

CONCLUSION AND SUGGESTIONS

Conclusion

Based on statistical calculation using SPSS program with Simple Linear Regression test, using 5% Alpha, it is revealed that the t significance is $0.000 < 0.05$ and F significance value is $0.000 < 0.05$ so that the alternative hypothesis stating that there is an effect of PBL (Problem Based Learning) method on students' critical thinking ability on entrepreneurship practice course at Economics Education Department of the College of Education and Teachers' Training PGRI Jombang East Java Indonesia.

PBL method is very effective when it is applied to help the teaching and learning process in order to improve students' critical thinking skills but there is a matter that one needs to pay attention to in its application. It is showing the initial problem in the right way in order that students could understand what they should do. The problem presented should not be a problem stated as a question for it should be an actually occurring problem.

In order that the results of the research concerned here are improved, it is suggested that additional research be conducted to measure not only students' learning achievement and critical thinking skill but also other matters such as problem-solving abilities and other higher-level abilities or to measure students' collaboration abilities.

Suggestion

Some suggested matters dealing with the implementation of PBL are proposed in the following:

1. Lecturers are expected to use PBL method in entrepreneurship practice subject as alternative method in the learning process in order to make students participate actively and avoid boredom.
2. In the PBL method, lecturers play an important role in the implementation of the learning process since it requires lecturer's high creativity and good class management. Lecturer as a facilitator must be able to manage

the learning process in accordance to the stages suggested by the method. Therefore, the guidelines in implementing the method should be carefully prepared

IMPLICATION OF RESEARCH RESULTS

Based on the conclusions described above, the following are some implications that are considered relevant to the research.

The implications are stated as follow:

Theoretical Implications

1. The role of the entrepreneurship lecturer is they should have a PBL method to deliver the material. This material is not only focused on the theory, but it is also focused on the practical application.
2. PBL method requires students to construct their own knowledge through problems they encounter.
3. The proposition stated by Joyce and Weil (2000), Charles (1977) that PBL encourages Students' attitudes to think critically is proven.

Practical Implications

1. Lecturers should master various methods in delivering the material to the students.
2. Lecturers should be ready to face the challenges of global life as their roles and responsibilities in the future will be more complex. Thus, it demands the lecturers to make various improvements and adjustment to increase the competence.
3. Lecturers should be more dynamic and creative in developing the process of student learning. Lecturers in the future will no longer be the ones who become the most knowledgeable persons as knowledge keeps developing through times so they will keep interacting with other humans in this universe. In the future, the lecturers are not the only ones who are smarter among their students.
4. To face the challenges of professionalism, lecturers need to think anticipatively and proactively. Therefore, the lecturers should update their knowledge continuously.

Implications on the Development of Economics Education

1. The development of Economics Education under KKNi Curriculum especially economic education study program aims to improve students' intelligence, knowledge, personality, noble character and skills to live independently and follow education in accordance tone's major. In order to work effectively and efficiently and to develop skills, students must have high stamina, master their expertise and basic knowledge of science and technology, have a high work ethic and able to communicate in accordance to the demands of their work and have the ability to develop themselves.
2. There should be a conducive learning climate to create a safe, comfortable and orderly atmosphere so that the learning process can fun and enjoyable learning. Such climate will encourage the realization of an active, creative, effective and meaningful PBL learning process; which has more emphasis on learning to know, learning to do, learning to be ourselves. The atmosphere will foster the growth of independence and decrease dependency among campus residents. Consequently, not only students, but lecturers and leaders will be adaptive and proactive and has a high entrepreneurial spirit (tenacious, innovative and risk-taking).
3. In the learning process, lecturer's main task is to condition the environment in order to support behavior change for students. In general, the implementation of learning includes three things: Pre-test, the establishment of competence and post-test journal.

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