

# Does Problem Base Learning Effective to Improve Decision Making Skills Student?

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**Abstract:** Learning is an activity that is very important in improving student skills. Problem-based learning model is a learning model that aims to improve students' ability to make decisions. This study aims to determine the effectiveness of the implementation of problem-based learning in improving students' skills in making decisions. The sample of this research is 40 students of the Guidance and Counseling Department, who are taking the Self Development Counselor course, Muria Kudus University, Indonesia. The result of the skills is t count 2.06 > t table 2.03, the value of the creative character results in t count 2.327 > t table 2.03. Based on the data analysis, it is concluded that the implementation of problem-based learning is effective in improving students' ability to make decisions.

**Keywords:** problem based learning, decision making skills, counselor

## 1. INTRODUCTION

Decision making is an alternative selection action. This relates to the management function. For example, when managers plan, manage, control, they make decisions. However, classical theorists do not explain the decision in general. The pioneers of management theory such as Fayol and Urwick discuss decision making regarding their influence on delegation and authority, while the father of management - Frederick W. Taylor - only alludes to the scientific method as an approach to decision making. Like most aspects of modern organizational theory, the initial analysis of decision making can be traced to Chester Barnard. The Functions of the Exec Barnard provides a comprehensive analysis of decision making and summarizes are the decision process is a technique for narrowing down choices.

Decision-making behavior relates to organizational behavior theorists such as in the March and Simon, Organization, books in 1958, but these fields become more interesting with topics such as motivation and goals, and emphasize the reduction in decision making. Areas: decision-making behavior is developed outside the path of theory and organizational behavior research by cognitive psychologists and decision theorists in economics and information. However, this new interest has resurfaced about decision-making behavior and has returned to the path of organizational behavior.

Although classical decision-making theory runs in the assumption of rationality and certainty, it is not the case with behavioral decision theory. Decision-making theorists agree that individuals have cognitive limitations. The complexity of the organization and the world in general causes individuals to act in situations of uncertainty and information that are so diverse and

incomplete. Sometimes these risks and uncertainties cause organizational decision-makers to have doubtful or unethical decisions (see Examples of OB Applications: Follow Competition or Get Out?) Due to uncertainty and ambiguity, a number of decision-making models have been around for years. The basis and starting point for developing analyzing various models of decision-making behavior is to maintain the level and meaning of rationality.

In addition to complications related to a series of goal-plans, there is a possibility that the concept is not used. Decision making that is relevant to the national economy supports this position. Decision-makers who seek a rational adjustment in an economic system may produce undesirable or unanticipated outcomes. Simon also warned that a simple goal-plan analysis might produce inaccurate conclusions.

One way to clarify plan-rational rationality is to use appropriate and quality additional skills in various types of rationality. This shows objective rationalization can be applied to decisions that maximize value in certain situations. Subjective rationalization can be used if decisions maximize results in relation to certain subject knowledge. Rationality can intentionally be applied to decisions where adjustments to plans for purpose are deliberate processes. Decisions are considered rational when adjusting plans to goals sought by individuals or organizations; decisions are considered rational by the organization if they are intended for organizational purposes, and decisions are considered personally rational if directed at personal goals.

In addition to the rationality model of decision, another approach to decision-making behavior focuses on the style used by managers in choosing alternatives. For example, examples of typology of decision styles that use

managers as representatives identify: (1) charismatic (enthusiastic, interesting, talkative, dominant): Richard Bronson of Virgin Atlantic or Herb Kelleher, founder of Southwest Airlines; (2) thinkers (brain power, smart, logical, academic): Michael Dell from Dell Computer and Bill Gates from Microsoft; (3) skeptic (lots of requests, annoying, unpleasant, like to fight): Steve Case from AOL-Time Warner or Tom Siebel from Siebel Systems device developer; (4) followers (responsibility, caution, following trends, Bargaining) Peter Coors of Coors Brewery or Carly Fiorina of Hewlett Packard; and (5) controllers (logical, not emotional, thoughtful, careful, accurate, analytical): Former Ford CEO Jacques Nasser or Martha Stewart of Omnimedia) These styles reflect a number of dimensions of psychology including how decision-makers feel what is happening around them and how they process information.

Counselors are professionals who are expected to be able to provide assistance in helping to make decisions when counsees are faced with difficult choices. Therefore, the counselor himself must have the ability to make good decisions before being transferred to the counselor. For this reason, from the beginning in the education process, the counselor must be equipped with the ability to make decisions so that when he has practiced in providing services the counselor is able to demonstrate his professional abilities.

Problem-based learning begins with problems and uses the instructor as a metacognitive trainer. There is a difference between problem-solving learning and problem-based learning. In problem solving learning, students are given problems after they are given information about the teaching material (facts, concepts, principles, laws), and students do not know why they should study the material. Meanwhile, problem-based learning is problem presentation. Learning begins after students are given a problem structure, so that students know why they should study the teaching material. The information collected and analyzed from the teaching material units that students learn is intended so that they are able to solve the problems they face. The problems raised must also be able to present concepts and principles that are relevant to the content domain. Students through problem-based learning also learn how to use an interactive process and evaluate what they know, identify what they need to know, gather information, and collaborate in evaluating hypotheses based on the data that has been collected. The role of the lecturer is to play more of a tutor and facilitator, especially in exploring and proposing hypotheses, and drawing conclusions.

Savoi & Andrew [1], propose six stages of the lecture process based on the following problems: (1) start by presenting the problem; (2) the problem should be related to the world of students (real problems); (3) organization of lecture material in accordance with the problem; (4) giving students the primary responsibility for forming and directing their own lectures; (5) using small groups in the lecture process; and (6) demanding students to display what they have learned.

Problem Based Learning is one answer to the problem of the low level of thinking ability. Research conducted by Fitrah [2] shows that problem-based learning can improve students' mathematical concepts. In addition, Problem Base Learning (PBL) is also able to increase student activities to continue learning the material taught by the teacher. Achievement between teacher and student activities and understanding of students' mathematical concepts in problem-based lectures get a positive response based on transcription from students, because students feel happy with the learning atmosphere that maximizes the activities in the group that is shared.

Another study conducted found that academic self-concept, student's initial knowledge, and anxiety greatly influenced the ability to solve problems and think high-level [3]. Of course lectures with the problem-based learning method become one of the effective ways to improve students' abilities. Thought with Damayanti, research conducted by Kurniati, Harimukti and Jamil [4] found that higher-order thinking skills can be sharpened through problem-solving training activities through assignments and work on various questions so that students are able to get used to solving problems that are getting longer and more difficult high.

## **2. LITERATURE REVIEW**

### **2.1 Problem Based Learning**

In problem-based learning, students are required to solve problems presented by digging up as much information as possible, then analyzing and finding solutions to existing problems. The solution to the problem is not absolutely to have one correct answer, meaning students are also required to learn creatively. Students are expected to be broad-minded individuals and able to see learning relationships with aspects that exist in their environment.

In the scope of problem-based learning, students act as professionals in dealing with problems that arise, although, with an unclear point of view and minimal information, students are still required to determine the best possible solution. Problem-based learning makes changes in the learning process especially in terms of the role of the teacher. The teacher does not only stand in front of the class and acts as a guide for students in solving problems by providing finished completion steps but the teacher walks around the classroom facilitating discussion, asking questions, and helping students to become more aware of the learning process.

Details the steps for implementing PBL in teaching. Arends said there are 5 phases (stages) that need to be done to implement PBL. These phases refer to the practical stages carried out in learning activities with PBL as presented in.

## **2.2 Teacher Activity Phase**

### **2.2.1 Phase 1: Orient Students/Students on Problems**

Learning begins by explaining the objectives, activities and learning process that will be carried out. This stage is an important stage, the lecturer explains systematically and in detail what students have to do. In addition to carrying out the learning process to be carried out, the lecturer must also explain how the learning evaluation process is. This is important to increase students' motivation to learn, so that they can be involved in the learning being carried out.

### **2.2.2 Phase 2: Organize Students/Students to Study**

PBL not only improves students' problem solving skills, but also improves students' ability to learn collaboratively. Solving problems requires collaboration and sharing with fellow students. Therefore, lecturers can start learning activities by forming groups, each group can choose and solve different problems. The principle of grouping that exists in cooperative learning can be used as a reference in this context, such as heterogeneity, member interaction, effective communication, and the presence of peer tutors. Lecturers must monitor and evaluate the results of student work in each group to determine the performance and dynamics in the group during learning.

After the student is oriented to a problem and has formed a further study group the teacher and students determine specific subtopics, task investigations, and schedules. The main challenge for teachers at this stage is to strive for all students to be actively involved in a number of investigative activities and the results of these investigations can result in solutions to these problems.

### **2.2.3 Phase 3: Assisting Independent and Group Investigations**

An investigation is the core of PBL. Although each problem situation requires a different investigation technique, in general, it certainly involves identical characters, namely data collection and experimentation, hypothesizing and explanation, and providing solutions. Data collection and experimentation are very important aspects. At this stage, the teacher must encourage students to collect data and carry out experiments (mental and actual) until they truly understand the dimensions of the problem situation. The aim is for students to gather enough information to create and build their own ideas. In this phase, it should be more than just reading about problems in books. The teacher helps students to collect as much information as possible from various sources, and he should ask questions to students to think about the mass and the variety of information needed to arrive at solving problems that can be maintained.

### **2.2.4 Phase 4: Develop and Present Artifacts (Works) and Exhibit Them**

The investigation phase is followed by creating artifacts (works) and exhibits. Artifacts are more than just written reports but can be a videotape (showing the problem situation and proposed solutions), a model (a physical manifestation of the problem situation and its solution), computer programs, and multimedia offerings. Surely the sophistication of artifacts is greatly influenced by the level of thinking of students. The next step is to showcase his work and the teacher acts as an exhibition organizer. It would be better if this actor involved other students, teachers, parents, and others who could be "assessors" or provide feedback.

### **2.2.5 Phase 5: Analysis and Evaluation of the Problem-Solving Process**

This stage is the final stage of PBL. This phase aims to help students analyze, diagnose, and evaluate their own processes, as well as the intellectual and investigative skills students use. The teacher at this stage asks students to reconstruct the activities and thoughts that have been carried out during the learning process. When do students first gain a clear understanding of the problem situation? When are students sure of a particular solution? When can students receive explanations from other students? Why do students reject some of the explanations from other students? Why do students adopt their final solution? Do students change their mind about the problem situation during the investigation phase? What caused the change? Will students do it differently in the future? Of course there are many more questions that can be asked and asked to provide feedback and investigate the weaknesses and strengths of implementing PBL.

## **2.3 Decision Making Skills**

The definition of decision making that is commonly understood is the process of determining something from several options to achieve a goal. If a plan is set with the aim of achieving the vision, mission, and goals that have been made, then it is a rational decision, but the results also need to be tested rationally. Theoretically, there are difficulties in distinguishing plans and goals, but the real concept is that plans are drawn up to achieve goals. Plan-goals are connected and integrated chains. The relationship between plans and objectives in organizational activities is always formulated clearly, so as not to contradict each other. To achieve goals, individuals and organizations must develop a plan, from various alternative programs that can be implemented.

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The decision-making process is an important process in every level of a person's development. At least three years refer to Ginzberg's development theory, there are several individual characteristics in its development that color the decision-making process.

Decision making is a final succession that indicates a person's maturity. The theory has agreed that the process of development and for the decision making of adolescents requires a level of maturity (attitude and competence) which is characterized by exploration of one's abilities, knowledge of available, employment, and the opportunity to get appropriate training [5]. The decision taken is a representation of the integration of self-orientation and understanding of various information about the choices and alternative options available. The skills needed for each individual in decision making so that the decisions taken are truly in accordance with the potential of the individual and the opportunities that exist in society.

Decision-making skills include the ability to: (1) identify options; (2) identify possible outcomes; (3) consider the pros and cons of choices; (4) identify alternative results; and (5) choose options that not only can be done but are likely to get what they want [6], [7]. These abilities will greatly affect the process by which an individual determines the choices of various alternatives available and makes a commitment to carry out choices in the form of action.

Decision theory applies to situations that are characterized by: (1) an individual who must make decisions; (2) a set of life goals that the individual wants to achieve; (3) a set of alternatives to choose available alternatives; (4) a set of attributes and factors that individuals take into account when comparing various alternatives; and (5) the need for information gathering and processing which often are in conditions of uncertainty [8], [9]. Gysbers [5] states that most children and adolescents cannot make intelligent decisions based solely on life experience. They need support and exploration in the form of curriculum and guidance programs to help guide them in the right direction. Most children and adolescents are at a disadvantage when it

comes to opportunities to develop their identity because they have limited access to different role models [5].

### 3. METHOD

This research was conducted with an experimental approach. This research sample is the students participating in the Counselor Self Development course, Muria Kudus University, Indonesia. The research was conducted in two groups / classes, each class consisted of 20 students (so that the total sample was 40 students). The two class groups are class A as the experimental class and class B as the control class.

The research instrument is a form of test of students' ability to make decisions that are developed from the indicators and substance of the Counselor Self Development course. The validation of the instrument construct involved two expert validators and factual validation through validity testing of 20 students. The results of the validity test are shown in Table 1 and Table 2.

Based on Table 1, the KMO and Bartlett's Test values for the correlation between the desired variables are  $> 0.5$ . The research significance is 0.05. From the results above obtained KMO value of 0.767 which means greater than 0.5. Meanwhile, the significance generated from Bartlett's Test of Sphericity is 0,000 [10]. With the above results, it can be said that the variables and samples used to allow for further analysis.

The instrument reliability test aims to measure the consistency of the instrument. Instrument reliability tests refer to the consistency of responses given to question items that measure a theoretical construct. Measurement reliability shows how far the measurement is without bias and guarantees that measurement is consistent with the time and across various questions. The reliability test scale of career decision-making skills is done using IBM SPSS Statistic 22. The result is in Table 2.

If the alpha value is  $> 0.7$  it means sufficient reliability while if  $\alpha > 0.80$  this suggests all reliable items and all tests are internally consistent because they have strong reliability. The reliability test results show a number of 0.952 (Table 2). This means that the alpha value of  $0.912 > 0.7$  means that this instrument is reliable. Test the validity and reliability of this instrument underlies the researcher to use the instrument in the research designed.

**Table 1 KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.712
Bartlett's Test of Sphericity	Approx. Chi-Square	101.882
	df	21
	Sig.	.000

**Table 2 Reliability Analysis**

Cronbach's Alpha	N of Items
.912	2

**4. RESULTS AND DISCUSSION**

After conducting the pre-test and post-test the research subjects obtained the results as in Table 3. Results of analysis of test data for increased gain decision-making skills are shown in Table 4. In problem-based learning, students are required to solve problems presented by digging up as much information as possible, then analyzing and finding solutions to existing problems. The solution to the problem is not absolutely having the right answer, meaning that students are also required to study creatively. Students are expected to be broad-minded individuals and able to see the learning relationship with aspects that exist in their environment.

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best possible solution. Problem-based learning makes changes in the learning process especially in terms of the role of the teacher. The teacher does not only stand in front of the class and acts as a student guide in solving problems by providing finished completion steps but the teacher walks around the classroom facilitating discussion, asking questions, and helping students to become more aware of the learning process.

The Ministry of National Education (2003) identified that the main characteristics of PBL are directing students to problems, namely that students can ask authentic, multidisciplinary questions, can work together with other students in the process of investigating problems, and produce work. Situations and problems in PBL are a starting point for learning to understand principles, concepts, and develop students' problem-solving abilities.

**Table 3 T-Test Analysis of Decision-Making Skills**

Variant	Post Test Value	
	Control Class	Experiment Class
Average	66	72
dk	36	36
t <sub>count</sub>	2,14	
t <sub>table</sub>	2,03	
Criteria	The value of experimental class students' decision-making skills is the same as the control class students' Decision Making Skills values	

**Table 4 Gain Test Decision Making Skills**

Average	Pre Test	Post Test	Gain	Criteria
Experiment	66	81	0,34	Medium
Control	66	72	0,20	Low

In each indicator the skills in making career decisions in the research on the development of interactive multimedia assisted career guidance models consisting of: (1) the ability of students to understand themselves, such as abilities, talents and interests; (2) the ability of students to identify the various options that exist; (3) students' ability to identify and choose from various alternatives when making decisions; (4) the ability of students to identify various possible successes of each choice; (5) students are able to consider the pros and cons of the choices made, especially the pressure from environmental factors on the decisions they make, (6) students have flexibility in choosing careers; and (7) students are responsible for the decisions that have been determined. These seven indicators have different roles in supporting students' skills in making career decisions.

From the results of interactive multimedia assisted career guidance model research to improve career decision-making skills, it was found that there was a significant difference between the mean scores of students' ability scores for each indicator. In carrying out the discussion it is known that the biggest difficulty faced by students is in harmonizing personal choices with parents' choices. Often the differences of opinion that occur between students and parents actually complicate

matters because it increases students' doubts in making decisions.

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questions so that students are able to get used to solving problems that are getting longer and more difficult high.

## 5. CONCLUSION

The results of data analysis concluded that PBL model learning can improve students' ability to solve problems. PBL is a learning model that uses problems in the real world as a context for students to learn, so that they can think critically in solving problems and gain knowledge from learning materials. PBL is designed to improve students' higher order thinking skills in solving life problems.

Problem-based learning was developed primarily to assist thinking, problem-solving, and intellectual skills and learn to be autonomous learners. PBL's advantage is to encourage cooperation in completing tasks. Problem-based learning involves students in their own choice of investigation, which allows students to interpret the real world and build an understanding of the phenomenon.

## REFERENCES

- [1] J. M. Savoie and S. H. Andrew, *Problem-Based Learning as Classroom Solution*. California: Educational Leadership, 1996.
- [2] M. Fitrah, "Pembelajaran Berbasis Masalah Untuk Meningkatkan Pemahaman Konsep Matematika Pada Materi Segiempat Siswa SMP," *J. Pendidik. Mat. Kalamatika*, vol. 2, no. 1, 2017.
- [3] D. Damayanti and A. Widyowati, "Peningkatan Career Decision Making Self Efficacy (CDMSE) Melalui Pelatihan Perencanaan Karir pada Siswa SMK," *Humanitas (Monterey. N. L.)*, vol. 15, no. 1, p. 35, 2018.
- [4] D. Kurniati, R. Harimukti, and N. A. Jamil, "Kemampuan Berpikir Tingkat Tinggi Siswa SMP di Kabupaten Jember Dalam Menyelesaikan Soal Berstandar Pisa," *J. Penelit. dan Eval. Pendidik.*, vol. 20, no. 2, p. 142, 2016.
- [5] K. D. Rowland, "Career decision-making skills of high school students in the Bahamas," *J. Career Dev.*, vol. 31, no. 1, pp. 1–13, 2004.
- [6] V. G. Zunker, *Career Counselling A holistic Approach*, vol. 7th Editio. 2006.
- [7] L. Likoff et al., *Encyclopedia of careers and vocational guidance*, vol. 43, no. 07. New York: Ferguson, 2006.
- [8] N. Perry and Z. VanZandt, *EXPLORING FUTURE OPTIONS A Career Development Curriculum for Middle School Students*. New York: IDEBATE Press Books, 2006.
- [9] P. L. Glanzer, "Finding the Gods in Public School: A Christian Deconstruction of Character Education," *J. Educ. Christ. Belief*, vol. 4, no. 2, pp. 115–130, 2000.
- [10] J. A. Taylor, C. M. Shaw, S. A. Tan, and J. L. Falcone, "Are the kids alright? Review books and the internet as the most common study resources for the general surgery clerkship," *Am. J. Surg.*, pp. 1–5, 2017.