

Improving Learning Achievements Through Case- Based Method

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Submission date: 11-Oct-2022 12:12PM (UTC+0800)

Submission ID: 1922272701

File name: improving_learning.pdf (586.98K)

Word count: 2400

Character count: 14076

Improving Learning Achievements Through Case-Based Method

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ABSTRACT

Student-centered learning based on social and cognitive constructivism theories asserts that students' prior knowledge is the basis for learning and is a creative, relational process. Student-centered learning mirrors and promotes the paradigm shift from teacher to student-centered learning. This study's objective was to determine the difference between student-centered learning (case-based method) and teacher-centered learning (conventional method) on learning outcomes. This study was quasi-experimental with 64 samples using a t-test. The result showed that the learning outcome on the case-based method (81.86) was higher than the conventional method (78.59). There was a significant difference between student-centered learning and teacher-centered learning on learning outcomes (P Value=0.042). The student-centered learning method can improve the learning outcomes levels.

Keywords: Student-Centered Learning, Case-Based Method, Learning Outcomes

1. BACKGROUND

The changing times followed by education reform demanded a different way of thinking and acting from what had existed. A systemic approach needs a thorough diagnosis or paradigm shift [1]. There are four layers of nested systems that distinguish the change. In the first layer is a difference in the learning experience, and in the second layer to the learning system that allows the desired learning experience. The third layer is a change in the management of the learning system in educational institutions, and the fourth layer is a change to the education system nationally. The progress of the times also requires students to be more critical, creative, and able to solve problems and find solutions to these problems. Therefore it is crucial to practice high-level thinking skills in students.

High-level thinking skills can be applied in various disciplines—high-level thinking skills, supporting students' academic achievement [2]. The main feature of high-level thinking skills is critical and creative. The essential role of high-level thinking skills in learning lies in the learning process itself. Students will be accustomed to critical and creative thinking in decision-making and problem solving related to analyzing, evaluating, and creating [3].

Understanding and skills are best developed when students create new ideas, create and maintain case solving and participate in the community [4].

One learning strategy that can be applied to gain high thinking skills is the *Case-based method* (CBM).

Previous studies have found that case-based learning is better than conventional methods, where case-based teaching can improve critical thinking skills and classroom interaction. In the case of learning techniques, students are challenged to analyze problems presented in case form, make conclusions based on limited information, make decisions on uncertainties, ambiguities, and conflicting issues simulating the real world [5]. Case-based learning methods can train students to think holistically about the link between concepts and disciplines. Various disciplines in their long history have used case-based learning [5].

Andalas University's Public Health Science Study Program has not consistently learned based on learning achievements. There are still lecturers using face-to-face delivery or direct delivery from lecturers to students. When attending lectures or listening to lectures, student activities are limited to taking notes. It can be ascertained that active is the lecturer, not the student. One of the efforts to avoid this is implementing a student-centered learning system for each course: Child Development.

Child Development is a student course of the **S-1 Public Health Science Study Program** included in the concentration of Reproductive Health science. This lecture has been standardized in the primary curriculum of public health undergraduate study programs throughout Indonesia agreed by the Association of Indonesian Public Health Higher Education Institutions (AIPTKMI). This lecture

discusses child growth and development concepts in substance, including understanding, mechanisms, genetic roles, environment, hormonal, nutritional intake, infection, treatment, and psychosocial stimulation. This course also discusses the types of developmental disorders and interventions, positive deviance, ways of assessment of development, types of developmental disorders, and the role of early detection to prevent developmental disorders. The subject matter studied in this course will be easier to understand with case-based learning methods.

Based on experience, the achievement of learning by students is considered less than optimal. From the results of the study evaluation, the average student learning achievement score was only 74 points. Many factors that cause low student learning outcomes are internal and external factors of the student. Internal factors include learning motivation, intelligence, habits, and self-confidence. At the same time, external factors exist outside the student, such as; lecturers as builders of learning activities, learning strategy, facilities and infrastructure, curriculum, and environment. The selection of learning strategies becomes one of the critical factors for student learning achievement. So far, learning uses a Teacher-Centered Learning approach, where most of the learning process is dominated by lecturers. Students are less actively involved.

From the problems raised above, it is necessary to look for new strategies in learning that involve students actively. Learning that prioritizes mastery of competencies must be student-centered, provide relevant and contextual knowledge and learning experiences in real life, and develop students' rich and robust mentality. Lecturers must design learning activities that can develop students' cognitive, affective and psychomotor competencies. Student-centered learning strategies and the creation of a pleasant atmosphere are indispensable to improving learning outcomes.

This research aims to determine the difference in student learning achievement in children's growth and development courses through CBM and conventional approaches.

2. METHOD

2.1. Type of Research

The study used a simple experimental research design (Quasy Experimental) and analyzed data using the calculation mean difference test with the *t-test* formula.

2.2. Population and Sample

The population in this study are all students of Andalas University's Public Health Science Study Program who take the program Of Child Development Year Akademik 2021/2022.

Sample be part from sum and characteristic that Owned by population. Deep This sample is the total population. All members of the people made a sample (48 people). The reason researchers use this technique is because the number of subjects is not too much. The sample will get two different learning methods. Group I will Given material Learning with learning methods *Case-based method* (CBM). While at group II, the material was delivered in a conventional way (lectures and questions) answer).

These two groups have two stages of implementation of activities, namely the learning process and evaluation tests. The allocation of time used for each meeting of the learning activities of the two groups is the same, which is 100 minutes. The material provided is the same for both groups. The fundamental difference is more to the delivery strategy by lecturers.

2.3. Data Collection

Data on the implementation of the learning process in CBM classes and conventional classes is done by describing the learning process. Data on the performance of learning processes using learning methods in CBM and conventional courses are obtained from observations during learning. The data was taken by an observer who observed the learning system at each meeting. The Observer in this study is a lecturer in the course. Data comparison of learning outcomes between classes using the CBM method and conventional types is obtained from the results of evaluation tests. Questions consist of three groups: questions to measure basic knowledge, questions to measure skills using instruments, and questions to measure analytical skills. Each group contains five questions.

3. RESULTS AND DISCUSSIONS

This study explains the implementation of CBM group learning, conventional group learning, and comparing learning outcomes between the two groups.

3.1. Case-Based Method Group

Learning is carried out in 7 meetings with 100 minutes per meeting. At the first lecture meeting, lecturers get acquainted with students and introduce

the concept of CBM that requires the active involvement of lecturers and students to achieve learning goals jointly. On this occasion, lecturers also presented to students the addition of sub-topics of interest into RPS and formed student groups. In the final stages, lecturers explain the group's task for the subject matter in the following week.

At the second meeting and beyond, the preliminary stage explains the learning goals to be achieved. The presentation stage consists of exposure to the results of group discussions about a case. Lecturers allow other students to ask questions, exchange opinions, and respond to each other. Students who are active in learning deserve credit. Lecturers also appreciate added value for learners who ask questions, exchange ideas, and respond to each other. Lecturers bucket input and / correction to the group's subject matter by learning. At the end of the teaching, students and lecturers conclude today's material.

The last meeting is an evaluation test to determine how students master the material given during the learning process. The evaluation tests here are the midterm exam and the end-of-semester exam.

3.2. Conventional Group

Learning in conventional classes is also carried out in 7 meetings with 100 minutes per meeting.

The method of learning in conventional classes is more lecturer-centered than not. Lecturers teach like lecturers usually. Providing understanding and explanation of the material, if anyone does not understand, students can ask it; in this study, most students are just silent, not very active. At the end of the class, the lecturer gives the conclusion of the material, giving opportunities to students who want to ask questions.

The last meeting is an evaluation test to determine how students master the material given during the learning process. The evaluation tests here are the midterm exam and final exam.

3.3. Comparison of CBM and Conventional Group Learning Outcomes

The test research is conducted at the end of the study, namely the evaluation test. Test results are analyzed statistically using the calculation mean difference test with the *t-test* formula. Here is a statistical analysis of student learning outcomes. The average score of student learning achievements in the CBM group is 81,86. For the conventional group, the average value is 78,59. There is a

significant difference in the average value of student learning achievement between the two groups ($p < 0.05$).



Figure 1. Frequency Distribution for Basic Knowledge

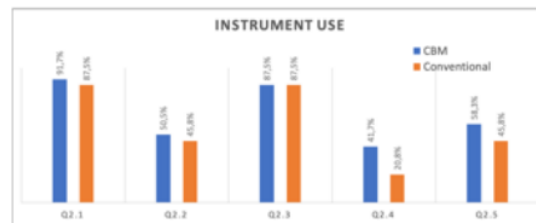


Figure 2. Frequency Distribution for Instrument Use



Figure 3. Frequency Distribution for Analytical Skills

Figure 1 shows the frequency distribution that correctly answers the basic knowledge question. As can be seen in the picture, there is no difference between groups of students in answering each question.

Different from the instrument component, there is a percentage difference between the two groups. The percentage of students who answered correctly was higher in the CBM group than in the conventional group (figure 2). Similar results were

obtained for the analysis component. CBM group is superior in achieving analysis-related scores than groups with conventional learning (figure 3).

The study results found that the average student learning achievement was higher in the CBM group. This finding is in line with Zhao's research mentions that CBM is an effective method to improve the performance of medical students [6]. Prihastuti also obtained empirical evidence that *case-based learning* significantly enhances students' understanding of auditing materials [7].

Laatsch says Students Centered Learning (*SCL*) emphasizes learning based on individual interests, needs, and abilities, promising a learning model that explores intrinsic motivation to build a society that likes and continuously learns [8]. *SCL* is a learning method that empowers learners to be the center of attention during the learning process. According to Hall, *SCL* helps students discover their learning style, understand motivation, and master the learning skills that work best for them. It will be precious throughout their lives. Implementing the *SCL* approach will help students set achievable goals, encourage students to assess their learning outcomes, help them work together in groups, and ensure that they know how to make the most of all available learning resources. Learning is more a form of overall self-development than the linear progress of lecturers using praise and sanctions. Mistakes are a constructive part of the learning process and do not need to be seen as embarrassing [9,10,11].

The role of lecturers is essential. As a facilitator in the learning process, reviewing the competence of courses, designing strategies and learning environments, helping students access the information [12].

4. CONCLUSION

In conclusion, CBM teaching may improve students' performance and enhance their analysis skills.

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