

Increasing Student Literacy Through The 4th Stages of The Case Method In Solving Problems

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Abstract. The application of the case method stage indicators forms the basis of student literacy habits. Experience following the stages of the case method directs students to gradually explore the case-solving activities given. Improving student solving skills through literacy optimization shows an important influence of the case method applied as a flow of learning activities. Applied the stages of the case method, it will be analyzed which stages are more dominant in influencing case-solving skills through literacy activities. Tests were carried out with descriptive analysis and linear regression analysis. The valuation instrument is prepared by adapting the valuation process. There are 4 stages in the case method, namely: Problem/Dilemma Selection; Presentation Issues; Preparation Issues; and Curricular Issues. The four stages have specific specifications for improving literacy skills. The literacy used in presenting solutions to given cases is more likely to be applied in 2 stages (Preparation Issues- and Curricular Issues). At this stage, the increase in literacy reaches 60% with an average per work indicator. The percentage of this achievement is obtained based on the treatment given in solving cases through structured training through various systematic procedures and strict supervision of learning activities. Adjustments need to be made in monitoring activities for the settlement of proposed cases to achieve acceptable solutions. The solutions provided need to be tested and go through an evaluation process from various literacies that are analyzed in concluding. By following the stages of this process, students become trained and experience an increase in problem-solving literacy, although they have not yet become accustomed to providing solutions individually.

Keywords: Case Method; Learning; Literacy; Skill; Solution

1 Introduction

Literacy is the skill of reading, writing, and speaking which has a very important role for every individual, including students. Good literacy skills will help students in the learning process and improve their academic abilities[1]–[3]. Therefore, increasing student literacy must be a priority in education. This should be a concern for teachers/educators as well as parents/guardians of students. Several ways that parents or educators can improve student

literacy include: Introducing reading habits from an early age. Reading habits that are built from an early age will help students become more accustomed to reading and broaden their horizons. Parents and educators can provide books appropriate to students' ages and interests to help them build reading habits and create a conducive learning environment[4], [5]. A conducive learning environment can help students focus and be comfortable in the learning process. Parents and educators can create attractive classrooms by providing adequate learning equipment, such as books, whiteboards, and computers; Using technology in learning. Technology can help students develop their literacy. Parents and educators can use interesting software and applications to help students learn to read and write more easily. However, like a double-edged sword, the use of the internet and software apart from providing positive effects also has negative effects[6]–[8]. Therefore, good supervision from parents and educators must continue to be carried out so that students only get positive effects from using this technology; Encourage discussion and reflection. Discussion and reflection can help students develop a better understanding of what they read. Parents and educators can engage students in discussions about the books or articles they read, help them formulate their questions and opinions; and Provide feedback and support. Feedback and support from educators are critical to helping students improve their literacy skills[9]–[11]. Parents and educators can provide constructive feedback and provide support to students in the learning process.

Improving student literacy is not an easy task, but by following some of the methods described above, parents and educators can help students develop better reading, writing, and speaking skills[12], [13]. This will help students to reach their academic potential and be successful in the future. The application of case method stage indicators becomes the basis of students' literacy habits. The experience of following the stages of the case method directs students to gradually explore the case-solving activities provided. There are 4 stages in the case method, namely: Problem/Dilemma Selection – Problem Presentation – Problem Preparation – and Curricular Problems. It is hoped that the use of these 4 stages can help students in solving the problems given.

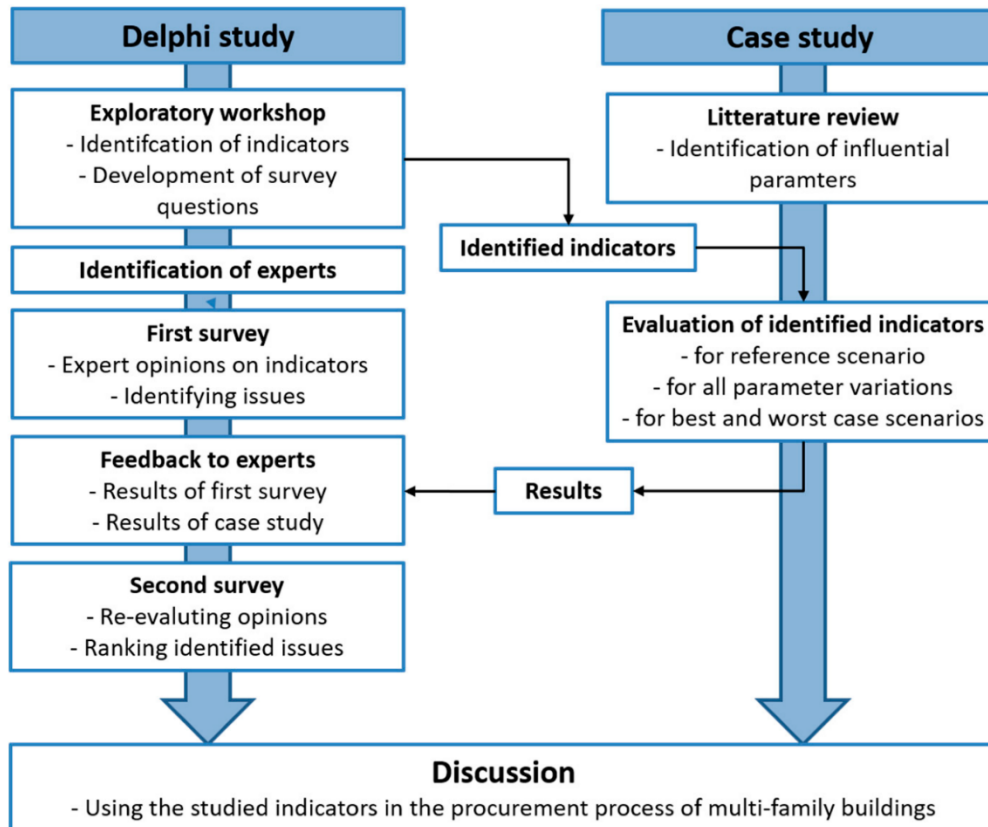
The 1st stage in the case method is problem/dilemma selection, at this stage students and educators choose the problem to be sought for a solution. Problem selection cannot be done haphazardly, meaning that several considerations must be taken in choosing the problem to be solved[14]–[16]. Choosing a problem to be used as a problem in research is not an easy thing. This happens because not all problems are worthy of being used as problems in research. Several ways can be used to select problems, such as conducting surveys or observing research objects, as well as consulting with experts, this aims to find problems that will be researched in a focused manner. Several considerations that must be taken into account when choosing a research problem include: 1. Selecting research topics and problems must be based on the researcher's field and interests; 2. Selecting a research problem that must be based on (a) a difference between what is and what should exist or a difference between reality and expectations, (b) the question of why the difference exists, and (c) there are two possible answers to question; 3. The next consideration is that the problem to be researched must have good problem characteristics. The characteristics of a good research problem are: (a) the problem can be researched through data collection and analysis, and (b) it has theoretical and pragmatic significance, meaning that the problem will be significant if it is based on a theory, which theory can be used as a basis for correcting problems. problems discovered as a result of research; 4. The problem to be researched must be useful to solve, meaning that the

researcher must realize that by solving the chosen problem, something beneficial will be obtained both for the development of science and for other interests; 5. Researchers must have adequate skills and knowledge to solve the problem to be investigated; 6. The problem must be interesting to solve, meaning that the researcher must have a strong motive in choosing one of the many problems faced in research; 7. The problems investigated will, as far as possible, produce something new; 8. Researchers must believe that the data needed is sufficient and relevant; 9. The research problem should not be too broad but also should not be too narrow, because a problem that is too broad can cause difficulties in solving it because it will involve many aspects such as energy, costs, and time limitations, and vice versa, a problem that is too narrow will lose its meaning to be investigated and expressed scientifically [12], [14], [17].

The second stage is Presentation Issues. After carrying out the first stage, namely choosing or selecting a research problem the researcher has determined the problem to be investigated. Problem presentation where the researcher is asked to explain what problem the solution will be sought, why the researcher chose the problem to be researched, what is interesting about the problem so that the researcher wants to find a solution to the problem, and other questions that might arise at this stage [17]–[20]. **The third stage** is Preparation Issues, at this stage, the researcher must prepare all the needs that might be used in research activities in terms of tools and materials, costs, place and time for carrying out the research, and other needs [17], [19], [21]–[24]. **The fourth or final stage** in the case method is the Curricular Issues which can also be called evaluation. In this final stage, the researcher will evaluate the research results that have been obtained [25]–[27]. This stage begins with processing the data that has been obtained from the research so that researchers can conclude from the results of the research that has been carried out [17], [25], [26]. At this stage, researchers can conclude whether the problem under study has been resolved or not. The application of the four stages in the case method must be balanced with students' good literacy skills because these stages require students to use many references to solve the problems given. Using appropriate and relevant references will make it easier for students to solve problems.

2 Methods

The method of analysis uses statistics nonparametric and N-gain analysis to determine increasing the effects of the 4 stages. Applied the stages of the case method, it will be analyzed which stages are more dominant in influencing case-solving skills through literacy activities. Tests were carried out with descriptive analysis and linear regression analysis. The valuation instrument is prepared by adapting the valuation process. There are 4 stages in the case method, namely: Problem/Dilemma Selection; Presentation Issues; Preparation Issues; and Curricular Issues. The four stages have specific specifications for improving literacy skills. The thinking process and the treatment given were adapted from the Delphi-Case method [17].



Source: <https://www.mdpi.com/> [17]

Figure 1. Thinking Process of the method used

3 Results and Discussions

Learning to prioritize thinking processes requires treatment stages that can support skill improvement. Improving these skills is an important goal in students' career development. Developing skills will make those skills an individual property that is more important than just the value of learning outcomes [28], [29]. The preparations carried out in these 4 stages are key to optimizing individual skills and abilities in the literacy process. The literacy skills possessed are the basis for developing information which is used as a reference for assessing the process followed to present solutions as the key to success in learning [30]–[32].

Based on hypothesis testing of students' literacy abilities on the learning process (Table 1), it shows that there is no significant influence from the 4 stages on literacy abilities. This is because the development and progress of students' literacy develops along with the learning process. This happens evenly to all students. The improvement that occurs is not only owned

by one student. Consistent improvement in literacy skills creates harmony between students in achieving the development of literacy skills[9], [19], [22], [31], [32].

This suitability informs that literacy skills will not affect the learning process at the 4 stages of the case method applied in presenting solutions. This is an encouragement that literacy skills are not the only thing that influences learning that uses case methods as the key to learning by implementing 4 stages. The stages used and used as learning experiences make students develop more analytical skills[33]–[36]. This analytical ability is included in the thinking process used in finding solutions. Analysis is the basis for thinking that triggers the development of literacy and other basic abilities.

Table 1. Hypothesis Test

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The distribution of Literacy is the same across categories of tests.	Independent-Samples Mann-Whitney U Test	.312	Retain the null hypothesis.
2	The distribution of Literacy is the same across categories of tests.	Independent-Samples Kolmogorov-Smirnov Test	.878	Retain the null hypothesis.
3	The distribution of Literacy is the same across categories of tests.	Independent-Samples Kruskal-Wallis Test	.312	Retain the null hypothesis.

a. The significance level is .050.

b. Asymptotic significance is displayed.

The specific cases encountered in the implementation and application of the 4 stages are a determining factor in learning outcomes. These four stages are indicators of learning activities in supporting case methods-based learning[19], [21], [25], [26]. The increase that occurred in the four stages was dominated by Preparation Issues and Curricular Issues. These two stages achieved achievements in the form of improvements reaching more than 60% (Fig. 2). This achievement is the result of a trained analysis process in the case methods stage. This analytical ability is an important factor in improving students' learning experiences in developing literacy skills.

The solutions presented in the learning process are the results of discussions obtained from various concepts and arguments from the Delphi stage[37]–[39]. This stage directs learning towards achieving solutions based on identification and proof through various facts and data presented to strengthen the arguments for the proposed solution[40]–[42]. Problem solving which is the main factor in achievement cannot be separated from the role of thinking with the process used as treatment in students' activities during learning. Difficulty in verifying and justifying the statements and arguments given becomes an important exercise in convincing and defending the proposed solution.

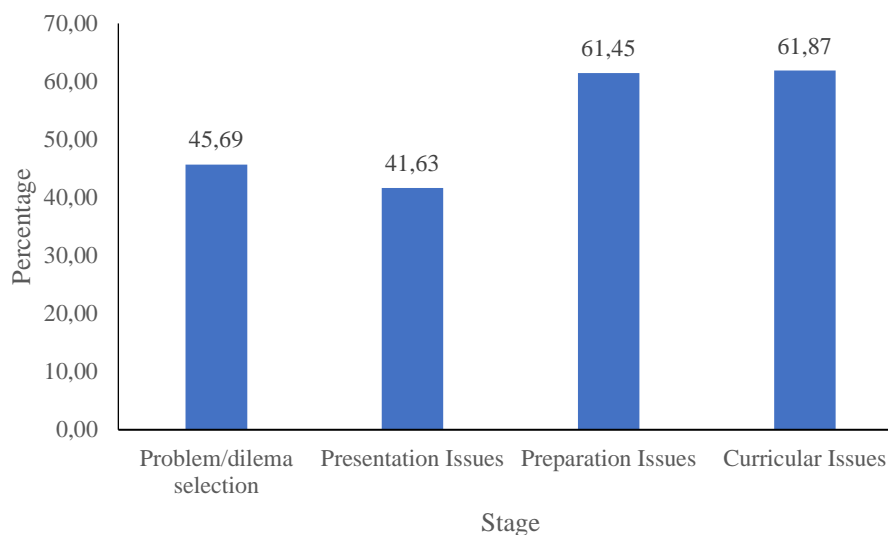


Figure 2. Percentage Increasing in Stage

A firm attitude based on evidence and facts makes students' personalities critical and open-minded individuals to all existing possibilities. This kind of attitude is a reference in forming the character of students with achievements as solvers in learning that adapts problems as a phenomenon that is considered an interdisciplinary application of science[43]–[46]. Apart from that, it provides training and experience for students in dealing with various problems appropriately and wisely. This is an experience that can mature your thinking both scientifically and mentally in preparation for achieving success.

4 Conclusion

The results of the research show that adjustments need to be made in monitoring activities for the settlement of proposed cases to achieve acceptable solutions. The solutions provided need to be tested and go through an evaluation process from various literacies that are analyzed in concluding. Systematically the stages of this process, students become trained and experience an increase in problem-solving literacy, although they have not yet become accustomed to providing solutions individually.

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