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Evaluating the Impact of the DECIDE Model on Decision-Making Skills in Elementary Teacher Education Students in Indonesia

Moh Salimi[1*], Ratna Hidayah[2], Suhartono[3], Tri Saptuti Susiani[4], Wahyono[5], Achmad Basari Eko Wahyudi[6], Laksmi Evasufi Widi Fajari[7]

[1,2,3,4,5,6] Department Elementary School Education, Universitas Sebelas Maret, Surakarta, Indonesia
[7] Department Elementary School Education, Universitas Sultan Ageng Tirtayasa, Serang, Indonesia

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ABSTRAK

Rendahnya keterampilan pengambilan keputusan pada mahasiswa menjadi salah satu tantangan dalam pendidikan guru sekolah dasar. Penelitian ini bertujuan untuk mengevaluasi keterampilan pengambilan keputusan menggunakan model DECIDE pada mahasiswa pendidikan guru sekolah dasar di Indonesia. Penelitian ini menggunakan metode kualitatif dengan jenis studi kasus. Subjek penelitian terdiri atas 70 mahasiswa yang dipilih menggunakan teknik purposive sampling. *Data dikumpulkan melalui tes uraian terbuka serta teknik non-tes berupa observasi partisipan dan wawancara mendalam. Hasil penelitian menunjukkan bahwa keterampilan pengambilan keputusan mahasiswa dapat dievaluasi melalui enam tahapan model DECIDE:* Define the Problem*, ditunjukkan dengan kemampuan mendefinisikan masalah dan aspek utama yang perlu diselesaikan;* Establish the Criteria*, melalui kemampuan menetapkan kriteria yang relevan dan objektif untuk mengevaluasi solusi potensial;* Consider all the Alternatives*, ditunjukkan dengan kemampuan mempertimbangkan semua alternatif beserta kelebihan dan kekurangannya;* Identify the Best Alternative*, yaitu kemampuan mengidentifikasi alternatif terbaik berdasarkan kriteria yang telah ditetapkan;* Develop and Implement a Plan of Action*, melalui pengembangan rencana tindakan yang terstruktur; serta* Evaluate and Monitor the Solution*, ditunjukkan dengan evaluasi berkelanjutan terhadap solusi yang diimplementasikan. Simpulan penelitian ini menyatakan bahwa mahasiswa pendidikan guru sekolah dasar di Indonesia memiliki keterampilan pengambilan keputusan yang baik berdasarkan model DECIDE.*

ABSTRACT

The low level of decision-making skills among students poses a significant challenge in elementary teacher education programs. This study aims to evaluate decision-making skills using the DECIDE model among elementary teacher education students in Indonesia. The research employed a qualitative method with a case study design. The participants consisted of 70 students selected through purposive sampling. Data were collected using open-ended essay tests and non-test techniques, including participant observation and in-depth interviews. The results indicated that students' decision-making skills could be evaluated through the six stages of the DECIDE model: Define the Problem, demonstrated by the ability to define the problem and identify the main aspects requiring resolution; Establish the Criteria, reflected in the ability to establish relevant and objective criteria for evaluating potential solutions; Consider all the Alternatives, shown by the ability to assess all alternatives along with their advantages and disadvantages; Identify the Best Alternative, characterized by the ability to identify the best alternative based on the established criteria; Develop and Implement a Plan of Action, shown through the development of a structured action plan; and Evaluate and Monitor the Solution, demonstrated by continuous evaluation of the implemented solution. This study concluded that elementary teacher education students in Indonesia exhibit good decision-making skills based on the DECIDE model.

Corresponding author
*E-mail addresses: salimi@staff.uns.ac.id (Moh Salimi)

1. INTRODUCTION

Decision-making skills have become more critical than ever, in the era of globalization and rapid digital advancement. The interconnectedness of global economies and cultures demands individuals to make decisions that consider various perspectives and potential impacts. Due to abundant information available online, it is necessary for individuals to be adept at analyzing data and distinguishing credible sources (Unciti & Palau, 2023; Wahono et al., 2021). Digital technology also demands quick, even real-time decision-making (Alred & Dauer, 2020; Murtafiah et al., 2019). It requires not only quick thinking but also strategic planning and problem-solving skills. The digital era also brings complex ethical dilemmas that demands sound decision-making to address various issues such as privacy, security, and digital rights (Mahrinasari MS et al., 2021; Wahono et al., 2021). In other words, decision-making skills are important for success in a globalized and digital world. Decision-making is an important skill in daily life that allows individuals to make appropriate choices that affect personal and societal well-being (Ajayi et al., 2023; West et al., 2021). In the social context, decision-making aids in resolving conflicts, setting goals, and efficiently allocating resources (Mahrinasari MS et al., 2021; Murtafiah et al., 2019). Without effective decision-making, societies may face risks of disorder and inability to function properly (Aydın Gürler & Kaplan, 2023; Vaidya & Acharya, 2023). Good decision-making supports collective actions that benefit the entire community, such as public health initiatives, educational improvements, and economic development (Le et al., 2022; Meral et al., 2024). Decision-making is the process of identifying and selecting alternatives based on the values, preferences, and beliefs of the decision-maker. This skill involves several steps, including defining the problem, gathering information, evaluating options, and choosing the best course of action (Kotorov et al., 2024; Oni & Adetoro, 2015). Effective decision-making requires critical thinking, analytical skills, and often collaboration (Turda, 2024; Unciti & Palau, 2023). It is fundamental in both personal and professional contexts, influencing outcomes and determining success (Le et al., 2022; Meral et al., 2024). Decision-making skills is an iterative process that requires reflection and adjustment as new information and situations arise (Aydın Gürler & Kaplan, 2023; Robert & Tomohito, 2023).

The DECIDE model is a systematic approach involving six key steps (Ajayi et al., 2023; Töre, 2022). The first step, define the problem, involves clearly articulating the issue to understand its core and ensure all parties share the same understanding. The second step, establish the criteria, sets relevant criteria for evaluating the available alternatives, guiding the decision-making process. The third step, consider all the alternatives, entails searching for and considering all possible options to ensure that every potential choice is explored. The fourth step, identify the best alternative, focuses on selecting the best option based on the established criteria. The fifth step, develop and implement a plan of action, involves creating a detailed action plan and executing it effectively. Lastly, the sixth step, evaluate and monitor the solution, requires assessing the outcomes of the decision and monitoring its implementation to determine the solution's effectiveness and make adjustments as necessary. The DECIDE model ensures that decision-making is conducted in a structured and comprehensive manner, thereby increasing the likelihood of achieving optimal results (Duru, 2022; Polatlar & Öztabak, 2021; Sutiman et al., 2022).

Decision-making is crucial for education students as it impacts the quality and effectiveness of the teaching and learning process (Aydın Gürler & Kaplan, 2023; Genisa et al., 2021). Education students must make informed decisions regarding teaching methods, classroom management strategies, and ways to evaluate student performance. Additionally, this ability helps them navigate the ethical and professional issues that frequently arise in the field of education (Meral et al., 2024; Yurtseven et al., 2014). In a dynamic and diverse educational environment, good decision-making enables future teachers to adapt and respond to their students' needs (Sadiya Iqbal et al., 2020; Sari, 2022). Effective decision-making also supports the development of critical and analytical skills, which are essential for designing responsive and effective curricula (Colakkadioglu & Celik, 2016; Novianawati & Nahadi, 2015). Therefore, decision-making skills are a fundamental foundation for shaping competent and high-quality teachers.

Education in Indonesia often does not sufficiently focus on the development of decision-making skills. The curriculum primarily emphasizes cognitive aspects and factual knowledge, while life skills such as decision-making are not explicitly taught (Mati et al., 2016; Sari, 2022). This is evident in the many Indonesian schools that prioritize academic content and a curriculum lacking in practical learning to develop decision-making abilities (Panpatte & Takale, 2019; Sari et al., 2022). Consequently, students are less trained to face real-life challenges that require effective decision-making. Furthermore, higher education presents additional challenges, as many students face high social and economic pressures. These pressures often divert students' focus towards the immediate need to secure employment and income, rather than developing good decision-making skills. This pressure frequently leads students to make reactive and short-term decisions (Al-Tarawneh, 2011; Sinnaiah et al., 2023; Sola, 2018).

Several studies have examined decision-making skills at various educational levels (Murtafiah et al., 2019; Sever & Ersoy, 2019; Unciti & Palau, 2023; Wahono et al., 2021). First study explored decision-making in high school students (Murtafiah et al., 2019), while another study focused on university students, investigating factors that influence their decision-making processes (Sever & Ersoy, 2019). Another researcher analyzed decision-making in adult learners, emphasizing critical thinking and problem-solving skills (Unciti & Palau, 2023), and among teachers in a professional development context (Wahono et al., 2021). This research differs by focusing on elementary teacher education students in Indonesia, evaluating the impact of the DECIDE model, which has not been extensively explored in previous studies, especially at the primary education level. Additionally, the novelty of this study specifically targets the practical application of a structured decision-making model in teacher training programs, distinguishing it from prior research that either focused on other educational levels or did not apply a specific model like DECIDE.

This study offers significant novelty by not only providing a better understanding of the specific challenges and needs of prospective teachers in Indonesia regarding decision-making but also contributing to the development of more effective educational strategies to enhance these skills in the future. It offers valuable insights for educational policymakers, institutions, and practitioners in their efforts to improve the quality of teacher education and prepare students to navigate the complexities of life in an ever-evolving educational landscape. Based on the above description, the objective of this study is to evaluate decision-making skills using the DECIDE model among elementary school teacher education students in Indonesia.

2. METHOD

This qualitative study aimed to deeply explore and understand the experiences, perspectives, and processes related to decision-making skills among elementary school teacher education students, a complex phenomenon that might not be quantitatively measurable (Creswell, 2014). A case study design was applied because it allows the researchers to collect data from various sources, providing a comprehensive understanding of its characteristics, context, and dynamics (Aspers & Corte, 2019). The participants in this study consist of 60 elementary education students currently enrolled in a teacher education program in Indonesia. Participants were recruited using the purposive sampling technique, which was applied based on certain considerations to obtain in-depth and relevant information aligned with the study's goals (Campbell et al., 2020). The inclusion criteria included students of elementary school teacher education department, possessing relevant experience or initial understanding of decision-making, actively participating in the Digital Classroom Management course, and willing to be research participants. Data were collected using test- and non-test-based techniques. The former includes open-ended essay questions while the latter involves participant observation and in-depth interviews. First, the open-ended essay was distributed to gather data on students' decision-making skills. This technique was effective as it created standardized conditions for all participants, enabling fair and consistent evaluation (Badarudin, 2017; Khristina & Prihatin, 2018). The non-testing techniques included participant observation and in-depth interviews. Participant observation was carried out to directly observe students' behavior in the context of courses requiring decision-making. Meanwhile, in-depth interviews provided students the opportunity to explain their thought processes, factors influencing their decisions, and their experiences or views related to the research topic.

In this study, the open-ended essay was designed to measure students' decision-making skills in the context of digital classroom management. Students were asked to answer six questions per learning case. The first question asked for the identification and explanation of the problem, followed by an explanation of the criteria for selecting a solution in the second question. In the third question, students were asked to provide several alternative solutions along with their pros and cons. The fourth question asked students to choose the best alternative, explain the reasons, and describe the implementation method. Next, the fifth question required a detailed action plan for implementing the chosen solution, including concrete steps. Lastly, the sixth question asked students to explain how to evaluate the success of the solution, including evaluation criteria and monitoring methods. This instrument assessed various aspects of decision-making skills, such as problem analysis, criteria consideration, solution selection, action planning, implementation, and outcome evaluation. Data were analyzed using qualitative technique (Miles et al., 2014), which comprises data collection, data presentation, and conclusion drawing. During the data collection stage, researchers gathered relevant information through methods such as observation, interviews, and document analysis. In the data stage, data were organized into comprehensible formats, such as tables, graphs, or narratives. The conclusion drawing stage included

interpreting the presented data, identifying patterns or themes, and drawing conclusions based on the findings from the analysis.

3. RESULT AND DISCUSSION

Result

This study aimed to evaluate students' decision-making skills in the context of digital learning and identify differences between students with high and low decision-making skills. Through data analysis of students' responses, this study explored factors influencing their ability to handle various online learning challenges. Below is the situational test instrument used to evaluate students' decision-making skills.

As a teacher conducting a digital class, students face various challenges during online learning. Unstable or limited internet connections make it difficult for students to follow lessons in real-time. Many students also encounter device limitations, such as not having adequate computers or tablets to attend online classes. They also struggle to use digital learning platforms, access materials, and submit assignments. Furthermore, some students have trouble managing their time and maintaining self-discipline while studying from home, resulting in falling behind the schedule and late submission of assignments.

The set of questions provided aims to guide educators in addressing the issue of student participation in digital classrooms through a systematic and reflective approach. The first question focuses on identifying and explaining in detail the challenges faced in managing the digital classroom, emphasizing the importance of resolving these issues to ensure effective learning. The second question encourages the consideration of specific criteria for selecting solutions to enhance participation, highlighting the significance of aligning these criteria with the objectives of fostering inclusivity, engagement, and learning outcomes. The third question seeks the development of alternative strategies to improve student participation, along with a critical analysis of the advantages and disadvantages of each approach. Following this, the fourth question requires the selection of the most effective alternative, justifying the choice with logical reasoning and practical applicability. The fifth question involves designing a comprehensive action plan that includes clear, concrete steps to implement the chosen solution and addresses the specific needs of the digital classroom. Finally, the sixth question focuses on evaluating the success of the implemented solution by establishing measurable evaluation criteria and mechanisms to monitor improvements in student participation. Together, these questions form a cohesive framework for educators to systematically analyze, plan, and execute strategies to enhance engagement in digital learning environments while continuously assessing and refining their approaches.

D – Define the Problem

The first indicator in decision-making skills is D – Define the Problem, which is crucial for identifying and understanding the main issues faced. The ability to clearly define the problem is the initial step in finding an effective solution. Several challenges were identified in the case. First, unstable or limited internet connectivity poses significant difficulties for students in following lessons in real-time and often disrupts the flow of learning. Second, device limitations affect students who lack access to adequate computers or tablets, hindering their ability to participate in online classes, access materials, and submit assignments effectively. Third, a lack of familiarity and understanding in using digital learning platforms creates barriers for some students, obstructing their engagement with instructional content and assignment submissions. Lastly, difficulties in time management and self-discipline are prevalent, as some students struggle to maintain focus and adhere to their study schedules while studying from home, resulting in delays and a backlog of assignments. These issues collectively impede the effectiveness of digital learning environments and highlight the need for targeted solutions.

The response categorized as high provides a comprehensive analysis of issues such as internet connection problems, device limitations, difficulties in understanding digital platforms, and time management. Students were able to identify direct impacts on learning and present clear arguments on why resolving these issues is important. On the other hand, a low-category response to defining the problem namely, the unstable internet connections significantly hinder and complicate digital learning by disrupting real-time interactions and the seamless delivery of lessons. Furthermore, device limitations, such as inadequate computers or gadgets, exacerbate these challenges by causing delays and difficulties in accessing learning materials and completing assignments provided by teachers. These issues collectively impede the effectiveness of the teaching and learning process, undermining students' ability to fully engage in and benefit from digital education. The reason this response falls into the low category is because the student only mentions issues related to internet connection and device limitations without

providing a deep understanding of their impact on the learning process or offering concrete solutions. The analysis is descriptive and too general.

Respondents who provide high-level analyses are able to link identified issues with direct impacts on learning and provide specific solutions to improve the situation. On the other hand, respondents with low-level analyses tend to present issues in a general manner without developing deep insights into their impacts or solutions. This aligns with the opinion of high-category respondents who prioritizes the issues based on their urgency and potential impact, with those requiring immediate attention given the highest priority. They emphasized that detailed problem identification directly influences the quality of the solutions developed, as it provides a clearer depiction of the challenges to be addressed. In contrast, generic answers are considered less effective due to their lack of specificity and depth.

In contrast, interviews with students in the low category revealed a different approach to addressing case study questions. These students reported a tendency to provide brief and concise answers, offering a general overview of the problems without delving into extensive detail. They prioritize identifying only the most critical issue, assuming that resolving this primary problem will naturally address secondary issues. Their responses also highlighted a focus on outlining the general impacts of the problem and its potential to disrupt the teaching and learning process. This approach emphasizes creating a comprehensive plan for the most significant issue, with the belief that such a strategy will have a cascading effect in resolving other challenges automatically.

E – Establish the Criteria

The second indicator in decision-making skills is E – Establish the Criteria, which helps in setting standards or criteria used to evaluate potential solutions. This indicator is crucial to ensure that the chosen solution can meet the established needs and goals.

The high-category response for establishing criteria in addressing the student participation issue in digital classes highlights several essential considerations. Ease of use is prioritized to ensure quick adoption by both students and teachers, as overly complex solutions may hinder participation. Interactivity is emphasized, with features such as quizzes, polls, and forums identified as critical for fostering engagement and active participation. Accessibility is another key criterion, ensuring that all students, including those with physical or technical limitations, can fully participate without barriers. Flexibility is also deemed important, as it allows the solution to adapt to different teaching methods and individual student needs, providing tailored learning experiences. Lastly, security and privacy are non-negotiable, as safeguarding student data is essential for maintaining trust and avoiding legal implications. Together, these criteria form a comprehensive framework for selecting a solution that promotes inclusivity, safety, and enhanced engagement in digital learning environments. This response is categorized as high because it provides a deep and detailed answer, demonstrating a strong understanding of the importance of each criterion. The explanations given are also highly relevant to the analyzed case. The explanation of the importance of each criterion is also very comprehensive and demonstrates a deep understanding of the issues faced and meets student needs.

A low-category response for establishing criteria in addressing student participation issues in digital classes highlights only one factor: ease of use. This approach suggests that easily implementable solutions allow students and teachers to adapt quickly without facing technical barriers. However, this response is classified as low because it identifies only a single criterion and fails to address a broader range of essential factors. Additionally, the explanation lacks depth and does not elaborate on how ease of use directly resolves the issue or contributes to the overall learning experience. In contrast, high-category responses consider multiple criteria, providing comprehensive explanations that connect these factors to the problem's resolution. The comparison indicates that high-category responses are characterized by their detailed analysis and incorporation of diverse, relevant criteria, while low-category responses tend to oversimplify the problem, focusing narrowly on a single aspect.

C – Consider all the Alternatives

Before selecting the next step, a crucial phase in decision-making is considering all available alternatives. This process ensures that every possible option is explored before determining the best solution to adopt.

The high-category response for considering all alternatives in enhancing student participation in digital classes offers a wide range of thoughtful and detailed suggestions. The alternatives provided include fostering deep online discussions, making video lectures more engaging, creating a gallery of student work, ensuring class content is accessible, providing diverse activities, offering valuable feedback, using gamification, providing clear guidelines, using collaborative learning, and offering personalized learning experiences. Each suggestion is backed by a thorough analysis of the pros and cons, allowing for a

comprehensive evaluation of their potential effectiveness. This response is classified as high because it not only presents multiple alternatives but also emphasizes interactive and reflective learning strategies, such as fostering discussions and providing feedback, which engage students more deeply in the learning process. The alternatives also encourage collaboration, making the learning environment more dynamic and supportive. By considering a variety of solutions and evaluating their impact, the response demonstrates a well-rounded and thoughtful approach to improving student participation in digital classes.

The low-category response for considering alternatives to enhance student participation in digital classes suggests using online game-based learning and incorporating moving animations or engaging instructional videos. While these ideas may have potential to improve student motivation, the response falls short because it does not provide direct or comprehensive solutions for increasing active student participation. Furthermore, the response lacks an analysis of the pros and cons of implementing these alternatives, as well as an exploration of the resources required for their execution. The absence of a clear problem-solving focus also makes the response insufficient, as it fails to address the broader challenge of fostering sustained engagement and participation in a digital learning environment. This highlights the need for more detailed consideration and analysis of various alternatives to effectively address the issue at hand.

The interview results with the high-category student reflect a thorough and methodical approach to analyzing the case study. The student recognized the need for alternative solutions without predefined limits and, as a result, outlined a wide array of potential solutions that addressed the issue at hand. The student considered a broad range of factors, including instructional media, teaching strategies, learning approaches, technology, and instructional models, all of which could contribute to resolving the problem. Furthermore, the student provided a balanced analysis by discussing the pros and cons of each alternative, aiding teachers in making informed decisions based on a comprehensive understanding of the available options. This approach demonstrates a detailed and well-rounded analysis, taking into account various perspectives and potential outcomes.

In contrast, the low-category student's response focused narrowly on student motivation and attention as the central issue, suggesting that this was the most urgent problem requiring immediate action. The student proposed using engaging elements such as games and animations to capture attention in online learning. However, this response lacked a broader exploration of possible solutions and did not delve into the pros and cons of the suggested alternatives. Additionally, the student's focus on innovation and different approaches, while valuable, remained limited and did not fully address the diverse aspects of the case study. This highlights a more simplified, one-dimensional approach compared to the comprehensive analysis provided by the high-category student.

The research results demonstrate that high-category students are able to identify various solution alternatives from diverse perspectives and consider pros and cons for each alternative, providing a richer and more structured view. Their approach reflects a deep understanding of the complexity of educational issues and the ability to plan effective actions. In contrast, low-category students tend to prefer offering a single practical solution for the most pressing problem. This approach reflects a desire to provide quick and effective solutions that can be implemented immediately.

I – Identify the Best Alternative

As a continuation of considering all available alternatives, the next step in decision-making skills is to identify the best alternative that aligns most closely with the established criteria. This process requires a thorough evaluation of each option to determine the most optimal solution.

The high-category response demonstrates a well-considered approach to addressing the issue of student participation in digital classes. The student selected recorded video lessons as an effective alternative, justifying the choice by emphasizing the flexibility of time, which allows students to access the material at their convenience. This solution is particularly beneficial for students with unstable internet connections, as they can download the videos when they have access to a good internet connection and watch them offline. The student also provided specific, actionable steps for implementation, such as recording lessons using Zoom or Google Meet and uploading them to accessible platforms like Google Classroom or YouTube. The thorough explanation of how the solution addresses the problem and the concrete steps outlined show a deep understanding of the challenges in digital learning and how to overcome them effectively.

In contrast, the low-category response focuses on platform training sessions for teachers to address the lack of understanding of the technology used by students. While the choice to enhance teachers' technological skills is relevant, the response lacks immediacy and does not directly address the urgent issues students face, such as difficulties in accessing materials due to unstable internet connections

or hardware limitations. The proposed solution is more long-term and indirect, aimed at improving the technological competence of teachers rather than immediately improving student participation. Moreover, the response does not discuss the planning, implementation, or evaluation of the training, and it fails to consider the pressing need for practical, immediate solutions in the digital learning environment. Therefore, this response is considered low because it does not provide a concrete, effective solution that addresses the challenges in a timely manner.

Interview results indicate that high-category students are able to identify the most efficient solutions to address challenges in online learning. They emphasize solutions that are quick and easy to implement, providing broad positive impacts from implementation efficiency to learning outcomes improvement. Their solutions are designed to streamline the online learning process for students, making it more effective and enjoyable. Moreover, these students can provide concrete steps to implement these solutions, enabling them to be directly implemented by teachers or educational institutions. results from interviews with low-category students show that they are capable of providing solutions to address issues in online learning, but their approach tends to focus on a single large solution. They argue that training in using online learning platforms can address all the issues faced.

D – Develop and Implement a Plan of Action

The high-category response presents a comprehensive and detailed action plan to implement the use of video recordings for learning, which addresses the key elements of preparation, execution, and evaluation. It begins with preparing the necessary equipment and selecting appropriate recording tools (e.g., Zoom or Google Meet), ensuring all technical equipment is working properly, and then proceeds to record lessons, focusing on delivering high-quality content. The plan further details the steps for uploading the recordings to accessible platforms such as Google Classroom or YouTube, ensuring students can easily access them. Additionally, the action plan emphasizes providing students with user guides and technical instructions, enabling them to navigate the materials with ease. The plan also includes gathering feedback from students to assess the effectiveness of the recordings and make necessary improvements. This response demonstrates a well-thought-out and structured approach that not only addresses technical aspects but also considers the user experience and continuous improvement based on feedback.

In contrast, the low-category response lacks the depth and specificity necessary for a high-quality action plan. While the student mentions key steps like planning, system implementation, classroom execution, and monitoring, these elements are presented in a very general and vague manner. The response does not specify how digital technology will be integrated into each stage or how the specific issue of enhancing active student participation will be addressed. It also fails to elaborate on the details of execution, such as what tools or methods will be used to implement the plan, nor does it describe how feedback will be gathered or utilized to improve the process. The lack of specificity and focus on the specific learning issue makes this response inadequate for the task at hand, resulting in a low-category classification.

Results from interviews with high-category students indicate that they feel the need to provide very specific details about concrete steps that need to be taken, making it more practical and easier to follow. On the other hand, interviews with low-category students show that out of all the alternative solutions they could have elaborated on, they chose one of the best solutions. However, they feel that all implementations of their alternative solutions have the same steps in general outline. To improve efficiency, they created several steps that could be applied to all of their alternative solutions.

E – Evaluate and Monitor the Solution

The high-category response effectively incorporates multiple evaluation criteria to monitor the success of the device lending program. It covers a comprehensive set of indicators that reflect different aspects of the program, such as student participation, academic achievement, student and parent satisfaction, device utilization, and the condition of the returned devices. This approach ensures that the evaluation process is holistic, addressing both the short-term and long-term impact of the program. For example, monitoring student participation through attendance, assignment submissions, and online discussions provides tangible data to assess engagement. Similarly, comparing grades before and after the lending program allows for a clear assessment of academic achievement. Additionally, the response includes methods like surveys and usage logs to assess satisfaction and device utilization, demonstrating an evidence-based approach to evaluation. Moreover, the inclusion of device returns and condition monitoring ensures that the program is being executed responsibly, which is critical for the long-term sustainability of the device lending initiative. High-category students understand the importance of thorough, measurable criteria and detailed monitoring methods, as these tools enable ongoing adjustments and improvements to the solution, ultimately leading to more successful outcomes.

In contrast, the low-category response is overly simplistic and lacks the necessary specificity to evaluate the success of the program effectively. By merely stating "looking at how much influence is given to student learning outcomes," the student does not provide clear, measurable criteria or methods for monitoring progress. The response fails to detail how learning outcomes will be tracked or how participation, satisfaction, and other critical factors will be assessed. The absence of concrete evaluation methods such as attendance tracking, assignment submission monitoring, and satisfaction surveys means that the evaluation is not robust enough to ensure the solution's effectiveness. This results in an incomplete and vague approach, limiting the ability to make informed decisions or adjustments based on the data collected.

In summary, the high-category response reflects a deep understanding of the evaluation and monitoring process, employing detailed criteria and comprehensive methods to assess the success of the solution. On the other hand, the low-category response lacks the specificity and depth necessary for effective evaluation, hindering the ability to measure and improve the program's impact. The research findings above indicate that high-category students emphasize the importance of comprehensive evaluation by establishing clear criteria and detailed monitoring methods to measure various aspects of their solutions, such as student participation, academic achievement improvement, user satisfaction, device utilization, and device condition. Meanwhile, low-category students lean towards a simpler focus on the final outcomes of the program, specifically its direct impact on student learning outcomes as the primary success indicator.

Discussion

On the indicator “Define the Problem”, the study shows that respondents with high analytical skills can thoroughly identify and prioritize problems, developing specific solutions linked to learning impacts. In contrast, those with lower analytical abilities provide general responses without considering the deeper effects or actionable solutions. This ability to analyze and link issues to outcomes aligns with Jean Piaget's theory of cognitive development, highlighting the importance of detailed problem-solving in decision-making. Respondents demonstrating high-level analysis can link identified issues directly to their impact on learning and envisage concrete solution projections to improve the situation in subsequent stages. The ability to analyze case study problems in this research aligns with Jean Piaget's theory (Ahmad et al., 2016; Pakpahan & Saragih, 2022), emphasizing that deep understanding and critical analysis are essential in learning and decision-making processes. Inability to conduct deep analysis may hinder cognitive development and effective problem-solving. Furthermore, students with strong analytical skills tend to be more successful in managing and monitoring their learning processes. They are better able to set goals, plan actions, and evaluate outcomes effectively, all of which are integral to good decision-making (Mati et al., 2016; Sinnaiah et al., 2023; Sola, 2018).

The analysis of "Establish the Criteria" reveals that high-category responses provide detailed, comprehensive explanations covering various important aspects, while low-category responses tend to mention only a few criteria without in-depth explanation or offer specific solutions without identifying broader criteria. Students with high-category responses excel in their ability to provide detailed and structured analyses of problem solutions, focusing on relevant criteria and practical implementation in the field. They prioritize realistic and systematic solutions that are easy to implement by stakeholders. These students adopt a structured and systematic approach to problem-solving. On the other hand, students who opt for simple and general solutions may do so due to limitations in their cognitive capacity or knowledge of the problems they face (Alred & Dauer, 2020; Murtafiah et al., 2019; Wahono et al., 2021).

Those with low-category responses tend to simplify solutions to offer convenience, disregarding deeper aspects. They believe that good solutions should be practical and not cause additional problems, even if it means reducing solution complexity. Students in the low-category responses tend to take a simpler and pragmatic approach, focusing on solutions that provide ease and avoiding additional complications. This approach can be associated with heuristic theory as described by Kahneman and Tversky (Berthet & de Gardelle, 2023), where individuals often use practical rules or mental shortcuts to make decisions and solve problems in complex situations. However, despite yielding quick and easily implementable solutions, the lack of detail in their analysis may lead to solutions that are not fully effective or sustainable. This aligns with previous research findings indicating that less detailed solutions not based on deep analysis tend to be less successful in the long run (Le et al., 2022; Meral et al., 2024; Oni & Adetoro, 2015).

The research results of the "Consider All the Alternatives" indicator show that high-category students are able to identify multiple solution alternatives from diverse perspectives, weighing the pros and cons of each, reflecting a deep understanding of educational complexities and planning effective actions, whereas low-category students tend to offer a single, immediate solution to the most pressing

problem, aiming for quick, implementable fixes. The approach of high-category students, which involves identifying various solution alternatives and considering pros and cons, demonstrates higher-level analytical, synthesis, and evaluation skills in Bloom's taxonomy (Chandio et al., 2016; Huitt, 2011). They are capable of viewing problems from multiple perspectives and designing structured and thorough solutions. Conversely, low-category students who can only think of one alternative solution tend to operate at the application level, focusing on practical and immediate solutions that can be implemented quickly. Students who are unable to consider various solution alternatives may lack analytical, synthesis, and evaluation skills. Low analytical skills are evidenced by their tendency to view problems in a general manner without breaking them down into smaller parts. Low synthesis skills stem from their inability to significantly modify approaches by integrating various sources, for example. Low evaluation skills are shown by their inability to consider pros and cons of the given solution alternatives (Chandio et al., 2016; Huitt, 2011).

The "Identify the Best Alternatives" indicator highlights that low-category responses offer indirect and long-term solutions, such as platform training that focuses on enhancing technology skills instead of addressing immediate online learning challenges, like internet connectivity issues. In contrast, high-category students identify efficient, quick-to-implement solutions that directly improve the online learning experience, offering concrete steps that can be readily applied by educators or institutions to enhance learning outcomes. The research findings above indicate that high-category students are capable of providing efficient solutions and have sufficient understanding to outline concrete steps for implementing their solutions. In contrast, low-category students are able to provide solutions to address general issues. However, the solutions they offer tend to be overly complex and general, such as training in using online learning platforms. While this training can address various problems, it requires extra time and high concentration from teachers. Additionally, its impact on students is not immediately apparent, and learning remains constrained during the training process. To determine the best solution to a problem, students must be able to identify each aspect of the problem deeply and systematically. This process involves gathering relevant information, conducting detailed analysis of the situation, and evaluating various alternative solutions that may be available (Mati et al., 2016; Panpatte & Takale, 2019). Students who understand how to apply these steps demonstrate higher cognitive skills, particularly in the contexts of decision-making and problem-solving (Al-Tarawneh, 2011; Sari, 2022; Sinnaiah et al., 2023).

The "Develop and Implement a Plan of Action" indicator shows that low-category responses lack specificity and fail to address the core issue of enhancing active student participation in online learning, offering general steps without integrating digital technology or in-depth evaluation. In contrast, high-category students provide detailed, practical steps that directly tackle the problem, ensuring the plan is actionable and tailored to the specific learning needs. The research findings indicate that high-category students are capable of producing highly specific and practical action plans for each chosen alternative solution, enabling efficient implementation that is easy to follow. In contrast, low-category students tend to create general steps that can be uniformly applied to all alternative solutions, reducing the level of specificity and flexibility in their action plan implementations. The ability to create structured action plans demonstrates cognitive maturity among students and their capacity to identify concrete steps necessary for implementing selected solutions (Colakkadioglu & Celik, 2016; Mati et al., 2016; Novianawati & Nahadi, 2015). This capability is rooted in the deep analysis of all relevant factors, including available resources, required time, and operational steps needed (Genisa et al., 2021; Yurtseven et al., 2014). Furthermore, the ability to create detailed action plans indicates that students can prioritize tasks, allocate responsibilities to those involved, and anticipate potential obstacles or challenges that may arise during implementation (Duru, 2022; Sutiman et al., 2022).

The findings on the "Evaluate and Monitor the Solution" indicator show that high-category students emphasize comprehensive evaluation by establishing clear criteria and detailed monitoring methods across multiple aspects such as student participation, academic performance, and device utilization. In contrast, low-category students focus mainly on assessing the direct impact of the program on student learning outcomes, without considering broader factors or continuous monitoring. Students who can evaluate the solutions they propose have reached the highest level of understanding and skills in the decision-making process. These students tend to have a clear understanding of the success criteria or relevant achievement indicators in the context of the situation or problem they face (Ajayi et al., 2023; Robert & Tomohito, 2023). They can identify the important parameters to assess whether the chosen solution can meet those objectives or not (Aydın Gürler & Kaplan, 2023; Colakkadioglu & Celik, 2016). The evaluation process involves the ability to gather and analyze both quantitative and qualitative data to assess the extent to which the chosen solution can meet expectations or achieve the set goals (Turda, 2024; Vaidya & Acharya, 2023). Students need to be able to identify the strengths and weaknesses of each

alternative solution and consider the long-term implications of the choices they make (Le et al., 2022; Mahrinasari MS et al., 2021)

High-level skills in solution evaluation can also give students a competitive advantage in the real world. They are more likely to provide well-informed recommendations or advice to relevant stakeholders, such as managers, colleagues, or clients (Meral et al., 2024; Oni & Adetoro, 2015). This ability is not only important in academic settings but also relevant in the professional world, where effective decision-making is often key to achieving organizational or project success (Mati et al., 2016; Sola, 2018).

The implications of this study suggest that the DECIDE model can significantly enhance decision-making skills in elementary teacher education students, a critical competence for future educators. These skills are essential for effective classroom management, curriculum planning, and adapting to diverse student needs. The findings may guide curriculum developers in integrating decision-making frameworks into teacher education programs to better prepare students for real-world teaching challenges. However, a limitation of this study is its focus on a single cohort of students from one region in Indonesia, which may limit the generalizability of the results. Additionally, the study's reliance on self-reported data could introduce biases in the evaluation of decision-making skills. Future research could expand the sample size to include students from multiple institutions and incorporate objective measures of decision-making. Moreover, longitudinal studies could help assess the long-term impact of the DECIDE model on teaching practices.

4. CONCLUSION

The findings of this study highlight the effective application of the DECIDE model by elementary school teacher education students in Indonesia, demonstrating their competence in structured decision-making. This includes defining problems and key aspects requiring resolution, establishing objective evaluation criteria, thoroughly considering alternatives, identifying the best option based on criteria and long-term consequences, and developing actionable plans followed by systematic evaluation and monitoring. These results underscore the students' analytical and systematic problem-solving abilities, which are pivotal for enhancing teaching quality. Integrating decision-making skills into teacher education curricula has the potential to equip future educators with the tools needed to navigate complex educational challenges and implement evidence-based teaching strategies, fostering adaptive and impactful classroom practices.

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