Problem Solving and Decision Making in An Educational Context

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Abstract

Problem-solving and decision-making are crucial competencies in the educational setting, indispensable for tackling the multitude of difficulties that educators and administrators encounter on a daily basis. This paper describes the theoretical foundations and real-world uses of these processes in educational environments. The article emphasises the significance of utilising the IDEAL model (Identify, Define, Explore, Anticipate, and Look back) proposed by Wehmeyer as a problem-solving framework. Using library research, researchers gather, analyse, and arrange data from journals, books, and past study on the adoption of management methods in the field of education especially on problem solving and decision making. This paper highlights the significant influence of organised problem-solving and strategic decision-making on educational outcomes, emphasising their crucial role in promoting a flexible and flourishing educational environment.

Keywords: decision making; education context; problem solving

INTRODUCTION

The capacity to solve problems and make effective decisions is of the highest priority in the constantly changing educational landscape. As we know, every institution, particularly those dealing with management challenges, will face difficulties. Problems in everyday life can arise from both internal and external sources. Many people assume that exterior problems are more harmful and should be resolved promptly. Internal problems are not particularly dangerous. This is a misunderstanding that can lead to the demise of a company or agency. Because of the challenge that we must address, no corporation or government agency will be immune, particularly when it comes to management concerns. When difficulties arise in ordinary life, they might be created by either internal or external parties. Internal problems are not particularly dangerous. This is a mistaken belief that could lead to the failure of a company or organization. Because the problem, which we must be aware of and address quickly, originates from within.

In order to address complex issues, individuals in positions of authority must consider a diverse array of interrelated factors. Therefore, individuals in positions of authority, such as executives or supervisors, especially those in middle and senior management roles, need to possess the ability to effectively address issues by considering the various factors that impact them. They must possess the capability to effectively handle larger and more complex systems that were previously unimaginable. Management effectiveness relies heavily on conceptual capacity, a high tolerance for ambiguity, and a deep awareness of interconnected events (Tunas, 2007). Applying a systems approach in this situation will greatly enhance the development of managerial talents.

In the context of education setting, educators and administrators encounter a variety of obstacles, including strategic planning for institutional development and classroom management issues. For example, educators are responsible for overseeing classrooms that are diverse, addressing the unique requirements of each student, and guaranteeing that learning objectives are achieved. At the same time, administrators are responsible for a wider range of duties, including the implementation of policies that promote institutional development, the management of budgets, and the adherence to educational standards. A combination of immediate problem-solving abilities and long-term strategic planning is necessary to effectively manage both day-to-day operations and future objectives in order to address these challenges (Baumberger-Henry, 2005; Naftel et al., 1993; Yurtseven et al., 2021).

Not only must these challenges be overcome, but an atmosphere that promotes learning and growth must also be created. Good problem-solving reduces interruptions and enhances the whole educational experience by making sure that challenges to student learning are quickly and effectively addressed. Conversely, decision-making involves choosing from a range of options the best course of action, which ensures that educational goals are met and that resources are used efficiently. These processes collectively establish a dynamic and supportive learning environment that fosters the growth of both students and staff (Adair, 2007; Klein, 2001; Reheem, 2005).

Problem-solving and decision-making have been investigated in numerous circumstances by educational researchers. Three significant studies are Jonassen's (2000) design theory, Schoenfeld's 1985 mathematical problem-solving study, and Bransford and Stein's 1993 IDEAL model. However, there are gaps in the literature about the integration of technology, interdisciplinary methods, and cultural and socioeconomic factors. Jonassen's study highlights the necessity of creating learning environments that foster problem-solving abilities, whereas Schoenfeld's study delves into the ways students use to solve mathematical issues. Bransford and Stein's thorough guide explains the IDEAL paradigm, which can help students and instructors improve their problem-solving skills. Addressing these gaps can lead to a more comprehensive

understanding of problem solving and decision making in education, resulting in more effective teaching practices and better student outcomes.

This paper aims to describe the concept of problem solving and decision making and its implementation in the context of education settings. The significant influence of organised problem-solving and strategic decision-making on educational outcomes is also explained in this paper.

Method

This study employs a library research researchers gather, analyse, and arrange data from journals, books, and past study on the adoption of management methods in the field of education especially on problem solving and decision making. This article is categorized into conceptual article. Conceptual articles focus on the author's views and are supported by theoretical investigations. In conceptual papers, without accompanying techniques or research drafts, but with an explanation of ideas backed by rational reasons of the theory relevant to the idea's goal. Writing conceptual papers does not follow the traditional format of research articles (Herianto, 2020).

DISCUSSION

The Definition of problem Solving

The term "problem solving" is derived from the words "problem" and "solve". The term "problem" denotes a situation that is difficult or intricate to manage or understand, whereas "solve" signifies the act of finding a resolution to a matter (Hornby, 1995). Hunt (1994) defines problem-solving as an instructional approach that presents students with problems to enhance their critical thinking and problem-solving skills, as well as facilitate the acquisition of knowledge and fundamental concepts related to the subject matter. Based on the provided explanation, it can be inferred that problem-solving entails the identification of solutions to problems through the utilization of diverse techniques, methods, and approaches.

The pedagogical approach to problem solving is derived from John Dewey's philosophy, aiming to cultivate critical thinking skills in youngsters. This approach can inhibit a youngster from forming impulsive conclusions, evaluating the feasibility of several alternatives, and deferring decision-making until there is ample evidence. Abdul Kadir Musyik was born in 1981. The approach of learning problem solving is a manifestation of the constructivist ideology. Connectivism is a philosophical perspective that highlights the idea that our knowledge is formed through our own fabrication. The source cited is Matthews (1994). Knowledge is not a mere replication of reality; rather, it is always the outcome of a cognitive process wherein an individual constructs their understanding of reality through a sequence of activities.

Steps in Problem Solving

In order to assess a student's problem-solving abilities, it is necessary to utilize a problem-solving model. Several models exist for measuring problem-solving abilities, with Polya being the most widely recognized. Polya's approach assesses a student's proficiency in four key stages: comprehending a problem, devising a solution strategy, executing the solution plan, and evaluating the steps done. However, this study utilizes the IDEAL model proposed by Bransford et al. (1986) which assesses students' problem-solving abilities through five stages: problem identification, problem definition, exploration of possible strategies, implementation of strategies, and reflection and evaluation of outcomes. Every stage in this paradigm is vital for guaranteeing that issues are resolved not just efficiently but also in a manner that fosters learning and enhancement.

1. Identify Issues and Potential Areas for Improvement

    The initial stage of the IDEAL model involves the process of identifying both issues and possibilities. This entails acknowledging and expressing the issues that require attention, as well as identifying prospective prospects for enhancement. Within an educational setting, this could entail observing that a substantial proportion of pupils are encountering difficulties in a specific subject, acknowledging deficiencies in the curriculum, or discerning prospects to incorporate novel technologies or instructional approaches. The initial step is crucial since it establishes the foundation for all following activities. In order to make progress in a meaningful manner, it is imperative to have a comprehensive comprehension of the issues or possibilities at stake.

2. Define Goals

    After identifying the issues and opportunities, the subsequent stage is to establish clear objectives. This entails establishing unambiguous, precise, and attainable goals that will direct the problem-solving procedure. Within an educational context, objectives may encompass encouraging student achievement in a certain discipline, fostering student involvement, or optimising the efficacy of instructional methodologies. Establishing objectives is crucial as it offers a distinct orientation and concentration for the endeavours of problem-solving. It guarantees that all actions are in line with the intended results and aids in evaluating progress and achievement.

3. Explore Possible Strategies

    The third step in the IDEAL paradigm involves the exploration of potential strategies. This entails engaging in a process of generating ideas and carefully evaluating a diverse array of possible remedies for the issues that have been discovered. In the field of education,

this could entail conducting thorough study on the most effective methods, seeking advice from peers, or engaging in trial and error with various instructional approaches. The exploration phase is vital since it enables the examination of many viewpoints and methodologies, hence enhancing the probability of discovering efficient and groundbreaking solutions. It fosters creativity and fosters critical thinking, allowing educators and administrators to formulate comprehensive and well-rounded plans.

4. Anticipate Outcomes and Act

Once the possible solutions have been thoroughly examined, the subsequent course of action involves predicting potential results and promptly taking appropriate measures. This entails assessing the possible consequences of each option and choosing the most optimal course of action. When developing educational plans, educators must carefully evaluate the practicality, advantages, and any difficulties that may arise with each approach. After a decision is reached, it is put into action with meticulous planning and implementation. Anticipating outcomes is crucial as it enables one to predict potential barriers and make necessary preparations beforehand. Implementing the selected approach necessitates dedication and synchronisation to guarantee its efficient execution.

5. Look Back and Learn

The last stage in the IDEAL paradigm involves reflecting on the process and acquiring knowledge from it. This entails contemplating the process of problem-solving and assessing the outcomes of the methods that have been put into action. Within an educational setting, this entails evaluating advancements in student performance, collecting input from students and teachers, and scrutinising the attainment of objectives. Reflecting and acquiring knowledge from past experiences is an essential process as it offers useful perspectives on successful strategies and areas for improvement. It enables instructors to enhance their methods, make essential modifications, and consistently enhance their problem-solving abilities. This practice of reflection guarantees that the process of learning continues and allows the institution to adjust and develop as time goes on.

The IDEAL Problem Solver model is a very effective cognitive method to problem-solving that is especially applicable in the field of education. Through the systematic and effective approach of recognising problems and opportunities, defining goals, investigating viable tactics, anticipating outcomes and taking action, and reflecting and learning, educators and administrators can solve challenges. This methodology not only facilitates the resolution of immediate issues, but also fosters a culture of ongoing

enhancement and knowledge acquisition. The IDEAL model offers a comprehensive framework for educational institutions to effectively address and overcome the growing complexities they encounter, ultimately leading to sustained success.

Decision Making in Education

Decision-making in education involves selecting the best course of action from multiple alternatives. It is an essential skill for administrators, teachers, and even students, as it directly impacts the efficiency and effectiveness of educational processes. Decision-making in education entails the process of carefully choosing the most optimal course of action from a range of available possibilities.

The Pre-Service Program for Teacher Candidate Selection Team Certification Program exercise book, issued by the Ministry of Education and Culture (2022) outlines several factors that professionals and teachers should take into account prior to making a decision. The primary function in the process of decision making is the ability to recognize and comprehend issues and opportunities in one's work. This is achieved through the collection, analysis, and interpretation of both quantitative and qualitative data. The next step involves selecting the most favourable course of action by establishing explicit decision criteria, generating and evaluating various alternatives, and making prompt decisions. Finally, it is crucial to take actions that align with the existing facts and limitations, while also optimizing the potential outcomes that may arise. Factors that necessitate consideration prior to making a decision include: 1). Recognize and analyze issues and potential advantages. Prior to reaching a conclusion, an individual must identify any issues and potential advantages, and then establish the appropriate course of action. 2). Comprehend information. Analyze data from several sources to uncover patterns, correlations, and causal linkages. 3). Assessing alternatives and risks - in this scenario, a decision maker must analyze and weigh appropriate choices using explicit decision criteria, taking into account the potential outcomes and repercussions when confronted with challenges or opportunities. 4). Execute the most efficient measures. In this scenario, a person in a position of authority must select the most practical choice from a range of options and carry it out based on established priorities. 5). Take into account the perspective of the other party.

Prior to reaching a decision, it is imperative for an individual to include other stakeholders in the decision-making process in order to gather more accurate information, create alternative options, and guarantee their participation in the final choice. Additionally, it is important to establish consensus among the involved parties when deemed necessary. Additional parties that may be involved include family members, individuals with greater expertise, higher-ranking individuals, or input from colleagues.

Strong decision-making skills are advantageous for students as well. Students play an active role in their educational journey by making choices regarding time management, study habits, and course selection. Acquiring proficient decision-making abilities empowers pupils to assume authority over their learning, resulting in enhanced academic achievement and readiness for forthcoming obstacles. For instance, a student who is contemplating how to harmonise extracurricular activities with academic obligations must use discernment in order to uphold high grades and overall well-being.

Directly influences the efficiency and efficacy of educational activities. The decisions made by all participants involved in the educational process significantly influence the efficiency and efficacy of the system. Effective decision-making by administrators, teachers, and students leads to smoother educational processes and more consistent achievement of intended results. Effective decision-making ensures the optimal utilisation of resources, including time, money, and supplies, resulting in a more productive and efficient educational setting.

In contrast, making bad decisions can result in inefficiency and adverse consequences. Inefficient allocation of resources, bad pedagogical approaches, or inadequately designed policies can result in the squandering of time, financial resources, and exertion, so undermining the calibre of education. For instance, if a school allocates significant resources to an unvalidated educational programme without conducting a thorough assessment, it may result in marginal enhancements in student achievement, so squandering precious assets that could have been more effectively utilised elsewhere.

Ultimately, decision-making in the field of education is a complex and crucial process that is vital for the achievement of educational institutions. The process entails the careful selection of the optimal course of action from a range of choices, and necessitates the involvement of administrators, teachers, and students. The effectiveness of educational processes is directly influenced by the quality of decision-making, which in turn leads to improved resource management, enhanced student outcomes, and a more favourable educational environment. It is essential to cultivate robust decision-making abilities among all individuals involved in education in order to promote an adaptable, responsive, and prosperous educational system.

Types of Decisions

1) Strategic Decisions

   These are long-term decisions that set the direction for an educational institution. They involve goal setting, policy formulation, and resource allocation. Strategic decisions are typically made by high-level administrators and have far-reaching implications.

2) Tactical Decisions

   These decisions are more short-term and focus on the implementation of strategies. They include decisions about curriculum design, program development, and scheduling. Tactical decisions are usually made by mid-level administrators and department heads.

3) Operational Decisions

   These are day-to-day decisions that ensure the smooth running of an institution. They include classroom management, lesson planning, and student assessment. Operational decisions are primarily the responsibility of teachers and frontline staff.

Impact on Educational Outcomes

The ability to solve problems and make decisions effectively has a significant influence on educational results. These activities play a vital role in establishing a conducive learning environment that fosters student encouragement and motivation to learn. By methodically addressing issues, such as identifying and satisfying varied student needs or overcoming instructional impediments, educators can improve student performance by using specific tactics that promote academic achievement. Furthermore, making decisions based on accurate information helps to maximise the allocation of resources and the implementation of policies, which in turn enhances the overall performance of the institution. Through systematic problem-solving and thoughtful decision-making, educational leaders have the ability to foster ongoing enhancement inside their institutions, guaranteeing the achievement of both current and long-term educational objectives (Abulibdeh et al., 2024; Day et al., 2020). This proactive and strategic approach not only fixes current difficulties but also establishes the basis for long-term success and flexibility in a constantly changing educational environment.

Conclusion

Problem-solving and decision-making are essential skills in the educational context. They empower educators and administrators to effectively traverse the intricacies of the educational environment, tackle obstacles in a proactive manner, and make well-informed decisions that improve learning and development. By cultivating these abilities, educational institutions may guarantee that they fulfil the varied requirements of their students and attain their educational objectives. To boost the effectiveness of problem-solving and decision-making processes in

education, it is important to emphasise systematic techniques, involve stakeholders, and address ethical factors.

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