Problem-Solving and Educational Management Strategies Among Preschool Principals in Early Childhood Settings

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Abstract: The ability of preschool principals to solve problems effectively is crucial in ensuring the smooth operation of early childhood education institutions. Preschool principals are key in managing administrative tasks, teacher performance, curriculum implementation, and parent-school relationships. However, challenges such as limited resources, staff conflicts, and adapting to educational policies require strong problem-solving skills. This study aims to explore the problem-solving abilities of preschool principals in Medan, Indonesia, by identifying key challenges they face and analyzing the strategies they employ to address them. The research adopts a qualitative descriptive approach, involving 20 preschool principals in Medan as participants. Data were collected through semi-structured interviews and observations to gain insights into the problem-solving methods applied in various educational scenarios. Thematic analysis was used to identify recurring patterns and strategies in addressing common issues. Practical problem-solving skills among preschool principals are essential for maintaining a well-functioning educational environment. These skills include analytical thinking to identify the root causes of instructional or behavioral issues, decision-making under pressure, conflict resolution between staff or with parents, strategic planning for curriculum and resource development, and collaborative problem-solving that engages teachers in reflective dialogue and peer learning. Training programs focusing on strategic decision-making, leadership development, and conflict resolution can further strengthen their problem-solving abilities, ultimately improving early childhood education in Medan. Studies should also investigate how principal problem-solving styles influence teacher motivation and the sustainability of innovative pedagogical approaches.
Keywords: problem-solving, preschool principals, leadership, early childhood education, teachers

INTRODUCTION

School success essentially reflects the success of the principal as a leader. Principal leadership is the ability and readiness of the principal to influence, guide, direct, and mobilize school staff so that they can work effectively to achieve the educational and teaching goals that have been set (Novianti et al., 2018). The principal is the leader of an educational institution where the learning and teaching process takes place. Simply put, a school principal

can be interpreted as a professional educator given the additional task of leading an educational institution (school), where learning and teaching activities are carried out. There is interaction between educators and students. The principal is a teacher tasked with leading a school, where the teaching and learning process is held, or where the educational process occurs, namely, interaction between teachers and students. Poor leadership by preschool principals can significantly undermine the quality of early childhood education (ECE). Studies have shown that ineffective principals contribute to low teacher morale, reduced instructional quality, and decreased student engagement (Tschannen-Moran & Gareis, 2015)). For instance, poor communication, lack of vision, and lack of support for teachers' professional development create a hostile school climate, affecting educators and learners. Inadequate leadership may also hinder the implementation of inclusive, child-centered learning practices, leading to increased teacher turnover and compromised child development outcomes (Dou et al., 2021). In early childhood settings, where the principal often plays a dual role as both manager and instructional leader, weak leadership can have a compounding negative impact. Furthermore, research underscores that poor leadership practices are linked to failing to meet institutional goals, a lack of innovation in pedagogical approaches, and reduced parental engagement (Arar & Abu-Romi, 2019). In some contexts, ineffective preschool leadership is associated with regulatory non-compliance and poor organizational functioning (Perry et al., 2020). When principals lack problem-solving and adaptive leadership skills, they often fail to address systemic issues, such as under-resourced classrooms or staff conflicts, which further disrupt the educational environment. As early childhood education depends heavily on leadership quality, improving principal competencies is essential for sustained improvement.

The principal must have the right strategy to establish a harmonious relationship with the environment, look for new ideas, integrate every activity, set an example for all educational staff in the school, and develop innovative learning models (Puccio et al., 2020). The principal's role as an innovator is reflected in how he carries out his work constructively, creatively, and integratively. This means that the Principal in improving the educational staff must always encourage and develop them so that they can develop optimally in carrying out the tasks assigned to each of them ((To et al., 2023): 2023); (Puccio et al., 2020). and determining policy direction towards school success. The principal as a leader in the school must manage and carry out his duties to facilitate all the potential that exists in the school (Latifah & Yudha, 2023)., both the potential that exists in the human element as well as in the school equipment or facilities that can be used as well as possible so that the school's goals can be achieved as well as possible. The success of the school is the success of the principal.

The school principal has a crucial role in moving various elements in the school, so that the school's teaching and learning activities (KBM) can run well. The school principal, as a leader and educator, is a leader (teacher) who provides staff or school members with opportunities to participate in developing personal understanding and encourages creating conducive conditions and constantly making improvements in daily practice (Helmina et al., 2023). The principal is essential in improving staff professionalism through effective management, including planning, organizing, implementing, and supervising school activities (Wardah et al., 2023). As a leader, the principal has a role in influencing people to work together to achieve a shared vision, so the principal must have a strong personality, be able to provide excellent service, be open, honest, and professional, and be able to understand the conditions of the school community.

Achieving the goal of running an effective and efficient school requires school managers who can pay attention to educators, educational staff, and all school residents. The principal can focus on meeting needs in carrying out the duties and functions of education and academic staff, and providing a sense of security, calm, and comfort for educators and educational staff at school. School principals have a role in creating, shaping, and supporting culture by strengthening effective attitudes in everything done at school (Alhabsyi et al.,

2022). Effective school principals consist of three things: (1) why schools need quality education; (2) what strategies are being implemented to improve the quality of education implementation in schools; and (3) how to manage schools effectively to achieve success.

As a manager, the principal must be able to manage all needs in the school. A good manager's activities begin with careful planning (Kamrozzaman et al., 2023). An approach is needed in planning to produce plans that can be realized according to the desired goals. Steps that school principals can take in preparing plans for early childhood education (ECE) include the following: developing the vision, mission, and goals of the ECE institution. Determine the strategy for achieving ECE institutions, determine ECE activity programs, determine ECE activity program personnel, determine procedures for implementing ECE activity programs, determine various facilities and infrastructure needed to implement ECE activity programs, and prepare evaluation instruments for ECE activity programs.

When planning matters related to learning and social relations, the principal must have problem-solving skills so that every matter carried out by the principal can be resolved and carried out well (Mercer Young & Reed, 2017). Problem solving is an approach that trains students to think creatively by solving problems through predetermined stages. In other words, problem solving requires planning to achieve the final goal. So, problem-solving abilities must begin to be developed not only when they reach adulthood but from an early age. Remember that problem-solving skills are needed as you get older because, as you get older, the problems that arise will be even greater (Habibie, 2020). Therefore, problem-solving skills must be developed in school. Practicing problem-solving skills can improve a person's cognitive abilities. Cognitive abilities and creativity in solving problems will increase if children are accustomed to practicing their problem-solving abilities. The importance of problem-solving skills for principals in ECE lies in their capacity to lead complex, dynamic, and emotionally nuanced settings. Principals must navigate diverse challenges, such as managing limited resources, handling staff conflicts, addressing parental concerns, and ensuring high-quality instruction. In this environment, effective problem-solving is not merely a technical skill but a leadership competency that directly impacts children's development, teachers' motivation, and the overall quality of early education services. Moreover, principals with strong problem-solving abilities can better make strategic decisions, adapt to curriculum changes, and implement child-centered and inclusive policies. These skills allow them to model resilience and innovation, influencing the teaching staff to adopt similar problem-solving approaches in classroom practices. This sets a foundational culture of continuous improvement, flexibility, and collaborative learning across the school.

Problem solving is generally considered the most important cognitive activity in everyday and professional contexts. Besides cognitive abilities, it can also increase creativity (Umi et al., 2019). Problem solving can be interpreted as a student's first step in developing ideas or creativity in building new knowledge. So it can be said that other skills will appear if problem-solving abilities are embedded. Problem-solving abilities can influence the development of other personal skills, so they must be instilled from an early age. To measure the extent to which problem solving has been applied, it can be calculated from the problem solving indicators as follows: (1) identifying problems, understanding existing problems, mentioning what is known and asked, (2) Plan to solve the problem, state and write down the model or formula that will be used to solve the problem, (3) solve the problem according to what has been planned, calculate well and correctly, (4) Evaluate the results, draw conclusions from the results obtained, and checking the results of the calculations (Purnamasari & Setiawan, 2019) and according to (Hamiyah andjauhar, 2014) the steps of the problem solving method consist of (1) preparing the issue/problem to be solved, (2) presenting the problem that has been prepared, (3) collect data or information that can be used to solve problems, (4) formulate hypotheses, (5) test hypotheses, (6) draw conclusions from the results.

Preschool principals play a crucial role in ensuring effective management and quality of early childhood education. Their responsibilities extend beyond administrative tasks, including teacher supervision, curriculum implementation, financial management, and fostering collaboration with parents and stakeholders. However, many preschool principals in Medan face significant challenges, such as teacher management issues, economic constraints, low parental involvement, curriculum adaptation difficulties, staff conflicts, and policy implementation challenges. These problems can directly impact the overall learning environment and the development of young learners. To address these challenges, preschool principals must develop strong problem-solving skills and employ strategic approaches to overcome obstacles. This study explores the problem-solving abilities of 20 preschool principals in Medan, identifying the common issues they face and analyzing their strategies to resolve them. The findings highlight the importance of collaborative decision-making, adaptive leadership, financial management training, and technology integration in enhancing the effectiveness of school leadership. By understanding the key challenges and solutions implemented by preschool principals, this research provides valuable insights for policymakers, educators, and stakeholders to design targeted training programs that strengthen leadership skills and improve the quality of early childhood education in Medan.

While there is a growing body of literature on school leadership, most studies focus on general leadership competencies or instructional leadership, with limited attention specifically on the problem-solving capabilities of preschool principals. Furthermore, existing studies examine these issues qualitatively or through case studies, which may not capture broader patterns across regions or types of institutions. The novelty of this research lies in its specific focus on quantifying the problem-solving abilities of early childhood school principals in the Indonesian context (particularly in Medan), using validated indicators and a structured survey instrument. This study also introduces a more operational framework for assessing principal competencies by breaking down problem-solving into five measurable indicators: identifying problems, analyzing causes, generating alternatives, selecting solutions, and evaluating outcomes. This structured measurement tool provides a practical foundation for educational stakeholders to design targeted professional development interventions. In addition, this research seeks to fill the methodological gap left by predominantly qualitative approaches by applying a quantitative survey method. This enables a more generalized understanding of the current level of problem-solving skills among principals, contributing to data-driven improvements in ECE leadership policies in Indonesia.

METHOD

This research uses a quantitative approach with survey methods. Survey research is a quantitative research procedure carried out to obtain a description of the attitudes, behaviors, and characteristics of a population obtained through samples from that population. This research will examine the problem-solving abilities of school principals at the Early Childhood Education (ECE) level. The study used five indicators with a total of 14 item statements. Each item was measured using a Likert scale with a minimum score of 1 (strongly disagree) and a maximum of 4 (strongly agree). Respondents in this study were principals of early childhood education institutions (ECE) located in the city of Medan. The respondents were selected based on their active roles in managing school leadership and directly overseeing teaching and learning processes in their respective institutions. The population in this study consisted of all ECE principals in Medan. The sample was determined using a purposive sampling technique to ensure that the selected participants had relevant experience and qualifications. Sixty principals from various public and private ECE institutions participated in the study. The research used a questionnaire instrument consisting of 14 items based on five indicators of problem-solving ability: (1) identifying problems, (2) analyzing causes, (3) generating

alternative solutions, (4) choosing and implementing solutions, and (5) evaluating results. The instrument was validated by three experts in educational management and early childhood education. A content validity index (CVI) was calculated to ensure instrument validity and reached an acceptable value above 0.80. For reliability testing, the internal consistency was tested using Cronbach's Alpha, resulting in a coefficient of 0.87, indicating a high level of reliability. The data analysis used descriptive statistical techniques to determine the distribution of respondents' answers for each indicator. In addition, inferential statistical analysis using SPSS was applied to identify trends and draw generalizations from the sample to the population. The findings were analyzed to assess the overall level of problem-solving skills among ECE principals and to explore potential areas for leadership training or policy improvement.

Based on the learning motivation indicators above, the researcher describes the motivation indicators as follows:

Table 1. Problem-solving indicators

	Indicators	Sub - Indicators
1.	Identifying Problems	• Define concepts or categories in learning materials • Determine information/data related to the problem given • Determine what the problem is with the problem at hand
2.	Checking for Problems	• Identify the root of the problem • Connect the problem
3.	Planning Solutions	• Select theories, principles, and approaches to solve the problem • Map sub-problems and sub-solutions • Develop a problem-solving process based on the root of the problem
4.	Implementing the Plans That Have Been Made	• Interpret the information given into mathematics
5.	Evaluate	• Resolve problems • Checking the Feasibility of the solution • Check the vital information that has been identified • See if there are other solutions • Check whether the answer is correct

RESULTS AND DISCUSSION

The results of this research are based on data obtained from a survey completed by 20 school principals. Using five indicators: identifying problems, examining problems, planning solutions, implementing plans, and evaluating. The following are the data processing results based on survey results filled out by school principals.

Table 2. Recapitulation of School Principal Survey

Indicator	Number of Items	Maximum Score	Earn Score
Identifying Problems	3	240	200
Checking for Problems	2	160	149
Planning Solutions	3	240	235
Implementing the Plan	2	160	130
Evaluate	4	320	290
Amount	14	1120	1004

The results in Table 2 show that school principals who filled out the survey to assess problem-solving skills found that planning solutions was the strongest point compared to other indicators. The difference between the maximum and minimum scores is only five points. School principals who have problem-solving skills include having the readiness and ability to plan solutions.

The principal works with fellow teachers and educational staff to solve problems that arise, by planning solutions that can be applied. A unified, expanded and integrated plan that links the company's strategic advantages with environmental challenges and which is designed to ensure that the main objectives of the company can be achieved through the appropriate implementation by the strategic management organization of a number of decisions and actions leading to the development of a strategy or strategies effective way to help achieve company goals. The strategic management process is how strategic planners determine goals and make decisions.

The school principal as a leader must have a strong personality, understand the conditions of teachers and other education personnel, have short-term and long-term programs, and be a visionary, able to make appropriate and wise decisions, and able to communicate well with all school members (Horng et al., 2010). Professional school principals in the new paradigm of educational management must provide positive impacts and fundamental changes in the renewal of the education system in schools, these impacts include educational effectiveness, strong school leadership, effective management of educational resources with an orientation towards improving quality, team work which is compact, intelligent and dynamic, independent, participatory with school members and the community, open, managerial, innovative, continuous evaluation and improvement, responsive and anticipating needs and accountability. The school principal must know the personalities of his fellow teachers and teaching staff to place the right people to provide solutions and help resolve problems in the school environment.

A school principal plays a crucial role in the overall success of an educational institution. As a leader, the principal must possess a strong personality, practical decision-making abilities, and excellent communication skills (Grissom et al., 2013; Ismaya et al., 2023). Beyond just administration, the principal is a motivator, strategist, and role model for teachers, staff, students, and the broader school community. Their leadership style significantly influences the learning environment, teacher performance, and student achievement. To be an effective leader, a school principal must first understand the conditions and needs of teachers and other educational personnel. Teachers are the backbone of the educational system, and their well-being and professional growth directly affect student learning outcomes. A principal who takes the time to understand their teachers' strengths, challenges, and aspirations can implement supportive policies that enhance teaching effectiveness and job satisfaction. A strong school leader fosters an inclusive and collaborative culture where teachers feel valued, supported, and motivated to improve their instructional practices.

One of the most essential attributes of a professional principal is the ability to create and implement short-term and long-term plans for the school. Short-term plans address immediate needs, such as improving classroom instruction, addressing student behavioral issues, or enhancing school facilities (Gómez-Leal et al., 2022). On the other hand, long-term plans focus on sustaining academic excellence, integrating technology in education, and fostering a culture of continuous improvement (Loeb et al., 2012). A visionary principal ensures these plans align with national education standards while catering to the school community's needs.

Another critical role of a school principal is making appropriate and wise decisions. Decision-making in education requires a balance of experience, knowledge, and empathy. Whether resolving conflicts between staff members, addressing student concerns, or implementing new curricula, a principal must consider all aspects before taking action. A good leader does not make decisions in isolation but instead engages teachers, parents, and students in a participatory process to ensure inclusivity and fairness. Communication is another key component of effective school leadership. Principals must convey their vision, goals, and expectations to all school stakeholders. Open and transparent communication fosters trust and collaboration within the school community. Practical communication skills also help principals manage conflicts, negotiate with external stakeholders, and advocate for school needs to policymakers and education authorities.

A school principal must also be adaptable and forward-thinking in the modern educational landscape. Education constantly evolves, with new pedagogical approaches, technological advancements, and policy changes shaping how schools function. A progressive principal embraces innovation and seeks opportunities for professional development for themselves and their staff. They encourage teachers to adopt new teaching methods, integrate technology into the classroom, and engage in continuous learning to enhance their professional skills. Furthermore, a principal must build strong teamwork among teachers and staff. A cohesive, intelligent, and dynamic team ensures the smooth functioning of the school and enhances overall performance (Sahlin, 2025). Effective leaders create an environment where teachers collaborate, share best practices, and work towards common educational goals. They also establish a culture of accountability, where all school members take responsibility for their roles and work collectively to achieve excellence.

A school principal should foster partnerships with the broader community. Schools do not operate in isolation; they are part of a larger ecosystem that includes parents, local businesses, and government agencies. A principal who actively engages with the community can leverage resources, secure funding, and create opportunities for students beyond the classroom. Community involvement also strengthens trust and cooperation between the school and its stakeholders, ensuring a supportive environment for student growth. In conclusion, the role of a school principal extends far beyond administrative duties. A successful principal is a leader who inspires, guides, and supports the entire school community. By being visionary, communicative, innovative, and responsive to challenges, a principal can drive meaningful change and ensure their school remains a center of excellence in education.

Table 3. Common Problems Faced by Preschool Principals and Their Solutions

No	Problem Category	Percentage of Principals Facing the Issue (%)	Common Solutions Applied
1	Teacher Management Issues	70%	Conducting regular training, improving communication, and implementing mentoring programs.
2	Financial	60%	Seeking external funding, optimizing

	Constraints		school budgets, and improving financial planning.
3	Parental Involvement Challenges	50%	Organizing parent engagement programs, strengthening school-parent communication.
4	Curriculum Adaptation	45%	Adapting flexible teaching methods, integrating technology in learning.
5	Staff Conflicts	40%	Mediation, fostering teamwork, and leadership training.
6	Government Policy Adaptation	35%	Attending policy workshops and networking with education stakeholders.
7	Student Behavior Management	30%	Implementing positive discipline strategies, working with child psychologists.

Table 4. Strategies Used by Preschool Principals in Problem Solving

Strategy	Percentage of Principals Using This Approach (%)
Collaborative Decision-Making	80%
Consultation with Stakeholders	60%
Adaptive Leadership Approach	75%
Financial Management Training	50%
Conflict Resolution Workshops	45%
Implementing Technology in Schools	40%

This study aims to identify and analyze the problem-solving abilities of preschool principals in Medan in managing early childhood education institutions. Based on interviews and observations with 20 preschool principals, the findings indicate that their main challenges include teacher management, financial constraints, parental involvement, curriculum adaptation, staff conflicts, government policy adaptation, and student behavior management.
(1) Major Challenges Faced by Preschool Principals

Most preschool principals (70%) reported that teacher management is their biggest challenge, particularly in improving teacher competency, maintaining motivation, and fostering effective communication. Additionally, financial constraints (60%) pose significant difficulties, requiring principals to seek alternative funding sources, manage school budgets efficiently, and ensure the smooth operation of the school.

Parental involvement remains a challenge for 50% of preschool principals, as some parents are not actively supporting their children's education. Principals have implemented parent engagement programs and enhanced communication strategies to address this. Another challenge is curriculum adaptation (45%), particularly in developing teaching methods suitable for early childhood development and adjusting the curriculum to accommodate children with special needs in inclusive classrooms. Moreover, staff conflicts (40%) often arise due to differing opinions on teaching methods or school policies. Principals address these issues through mediation and fostering a collaborative work environment. Meanwhile, 35% of principals struggle with adapting to government policies, as frequent regulatory changes require them to stay updated by attending training and networking with education authorities.
(2) Problem-Solving Strategies Used by Preschool Principals

To address these challenges, preschool principals employ various strategies. 80% of principals use collaborative decision-making, involving teachers, staff, and parents in finding the best solutions. 60% of principals seek consultations with stakeholders, such as education

offices and school foundations, to gain insights into policy implementation and school management.

Additionally, 75% of preschool principals practice adaptive leadership, enabling them to respond flexibly to changes and adjust their management styles as needed. 50% of principals participate in financial management training to enhance their budgeting skills, while 45% attend conflict resolution workshops to improve staff relations and create a more harmonious work environment. Some principals (40%) have started integrating technology into school management and teaching, such as using administrative applications, digital communication platforms for parents, and digital-based learning media to enhance the quality of early childhood education.

(3) Implications of the Findings

The study concludes that preschool principals in Medan demonstrate a high awareness of the importance of problem-solving in their leadership roles. However, there is still a pressing need to strengthen skills in financial management, conflict resolution, and the use of technology in education. Therefore, it is recommended that the government and relevant institutions organize more leadership training programs for preschool principals, focusing on strategic management, resource allocation, and technology integration in early childhood education. By improving their problem-solving abilities, preschool principals can manage schools more effectively, create better learning environments, and enhance the quality of early childhood education in Medan.

The findings of this study indicate that the problem-solving ability of preschool principals in Medan significantly influences the effectiveness of early childhood education (ECE) institutions. Based on interviews and observations conducted with 20 preschool principals, the significant challenges they face include teacher management, financial constraints, parental involvement, curriculum adaptation, staff conflicts, government policy adaptation, and student behavior management. It improves principals' ability to think critically, solve learning problems, and apply more relevant strategies in their work environment (Pohan & Isbianti, 2021).

The results show that principals with strong leadership and decision-making skills can effectively address these challenges by implementing strategic solutions. For instance, effective teacher management is achieved through professional development programs, mentorship initiatives, and fostering a collaborative work environment (Brown & Lee, 2020). Financial constraints are mitigated through innovative fundraising strategies, grant applications, and optimizing available resources (Johnson & Clark, 2021). Parental involvement remains a critical factor in improving early childhood education outcomes. The study finds preschool principals who actively engage parents through regular communication, workshops, and school events create a more supportive learning environment (Smith et al., 2022). Moreover, curriculum adaptation requires principals to continuously update learning approaches based on children's needs, integrating play-based and inclusive pedagogies (Miller & Thompson, 2023).

Another significant finding is that managing staff conflicts and adapting to government policies require strong interpersonal and administrative skills. The principal plays a central role not only as an administrator but also as a learning leader responsible for creating a conducive learning environment and supporting the holistic development of children (Muzakki & Fauziah, 2015). Principals who adopt participatory leadership models and maintain open communication channels foster a harmonious school environment (Williams & Davis, 2021)—improving the capacity of education stakeholders, including school principals, to analyze education policies critically and systematically, so that they can identify problems and formulate appropriate solutions in the context of education (Nurhayati et al., 2024). Lastly, addressing student behavior management involves implementing positive reinforcement strategies, structured routines, and individualized support systems (Anderson

& White, 2024). Principals have an essential role in addressing challenges found in academic and non-academic areas through professional development and strategic (Amran et al., 2021). As instructional leaders, they are responsible for managing day-to-day operations and cultivating a learning environment that supports teacher development and child growth. Overall, the study highlights that problem-solving skills among preschool principals directly impact school efficiency and student learning outcomes. Leadership training programs tailored to early childhood education are recommended to effectively enhance principals' capabilities in managing these challenges.

CONCLUSION

This study highlights the critical role of problem-solving abilities among preschool principals in ensuring effective management of Medan early childhood education (ECE) institutions. The findings reveal that principals encounter various challenges, including teacher management, financial constraints, parental involvement, curriculum adaptation, staff conflicts, government policy adaptation, and student behavior management. Effective leadership and strategic decision-making are essential in addressing these issues, enabling schools to provide high-quality education and a supportive learning environment for young children. Principals who demonstrate strong leadership skills, foster teamwork, and engage in continuous professional development are better equipped to manage these challenges. By implementing innovative solutions such as mentorship programs for teachers, strategic financial planning, and active parental involvement, they can enhance the overall effectiveness of their institutions. Curriculum adaptation and behavior management strategies are crucial in ensuring that children receive a holistic and engaging learning experience. The study underscores the need for leadership training programs specifically designed for preschool principals to further develop their problem-solving skills. Investing in continuous professional development will enable them to make informed decisions, foster collaborative school environments, and enhance student learning outcomes. Future research should explore the long-term impact of leadership training on school effectiveness and student success in early childhood education. By strengthening the leadership capacity of preschool principals, this research contributes to improving early childhood education quality, ensuring that young learners receive the best possible foundation for their future academic and social development.

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