









International Journal of Learning, Teaching and Educational Research
 Vol. 24, No. 1, pp. 152-171, January 2025
<https://doi.org/10.26803/ijlter.24.1.8>
 Received Nov 10, 2024; Revised Jan 16, 2025; Accepted Jan 21, 2025

The Urgency of Educational Management Training to Foster Teachers' Teaching Skills: Learn from Early Childhood Education (ECE) in Surakarta

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Abstract. This study aimed to investigate the significance of education management in improving early childhood education (ECE) teachers' skills and enriching their experiences. The Contingency Theory, as proposed by Donaldson, emphasizes that education management should be tailored to specific contexts and challenges of the environment. In line with this theory, training for ECE teachers in this study considered factors such as school size, demographics, and available resources to ensure teachers adapt teaching strategies to meet students' needs. A mixed method that combined qualitative and quantitative design was used. Furthermore, a total of 100 randomly selected ECE teachers were recruited as respondents to provide quantitative data through pre-test and post-test questionnaires. The qualitative phase involved in-depth interviews with 10 teachers, selected based on having less than 3 years of work experience. Moreover, training aimed to assess the improvement of teachers' teaching skills, covering topics such as questioning techniques, explaining concepts, reinforcement strategies, diverse instructional methods, as well as effective lesson opening and closing techniques. Another focus was on improving small group and individual teaching skills, classroom management, and facilitating small group discussions. The results showed a significant improvement in the teaching skills of ECE teachers in Surakarta, as evidenced by the pre-test and post-test. In addition, this study showed the importance of professional development in fostering effective teaching practices in ECE.

Keywords: early childhood education; education management; teaching skills; training

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1. Introduction

Promoting the quality of education in many countries is crucial for improving teaching skills (Zhang et al., 2024). This is important as teachers with strong teaching skills significantly influence the quality of education, specifically at the early childhood education (ECE) level (Akyol, 2023). In Europe, ECE teachers show skills by maintaining an open curriculum focused on child-centered learning (Kayratdinovna, 2023) and fostering the development of social interactions from the beginning of school (Ostinelli & Crescentini, 2024). Meanwhile, in America, teachers are considered qualified when a flexible curriculum that promotes children's cognitive development and social skills is implemented through play (Bourbour, 2023). In China, teaching skills are reflected in a focus on cognitive development, early literacy (Luo et al., 2023), numeracy (Fleer & Li, 2023), as well as preparation for primary school and future employment (Gong et al., 2024). In Southeast Asia, teaching skills emphasize engagement and collaboration with parents in fostering children's cognitive and social abilities (Aras, 2024).

ECE plays a crucial role in shaping the foundation of children's development (Bai et al., 2020; Rasmani et al., 2021). However, Binh (2023) showed that the average ECE teacher lacks sufficient skills in classroom management, lesson planning (Åström et al., 2022), and conducting developmental evaluations tailored to each child's needs (Burdelski, 2020). In addition, several factors affect teaching skills, including insufficient funding for teachers development programs (Friedman-Krauss et al., 2023), limited infrastructure in schools located in rural areas (Godhe, 2024), teachers' qualifications not corresponding with ECE (Lundberg et al., 2024), and the high physical and emotional demands of the job combined with modest salaries (Aboagye et al., 2023). Therefore, improving teaching skills of ECE teachers is both essential and urgent, and should be a top priority.

Innovations in developing ECE teachers' teaching skills are implemented in various countries. In Romania, the TELESPEA project creates outdoor learning parks for sensory learning and trains teachers to design age-appropriate learning spaces (European Commission, 2023). In America, teachers are trained to embrace personalized learning through interactive platforms (d'Alonzo et al., 2023), educational apps (Viñuela & de Caso Fuertes, 2023), and augmented reality (AR) (Tympa & Karavida, 2024). In China, teaching skills are improved by updating educational content (Vong et al., 2023), refining teaching methods (Sun et al., 2023), and incorporating technologies such as video conferencing and online collaboration platforms (Zhou, 2023). In Southeast Asia, initiatives like the Color of Kindness project in Bangladesh help teachers understand inclusive education through podcasts (Haines et al., 2023), while the Cung Hoc project in Vietnam focuses on building teachers capacity based on the values of enthusiasm, dynamism, and creativity (Binh, 2023). In addition, technology training is conducted to support personalized learning experiences (Cai, 2024).

Indonesia, with a population of 283,942,025 (Worldometer, n.d.), has 253,075 ECE institutions in operation (World Bank, 2024). However, fewer than 50% of ECE teachers hold diplomas, creating challenges and uniqueness in ECE

(Nurdyansyah et al., 2022). The strategies taken by other countries regarding teaching skills development do not always correspond with the needs and characteristics of Indonesia. Although innovations in some countries have had a positive impact on Indonesia, the country still lacks sustainable education management. For example, trainings are often short-term (Onalapo et al., 2023) and fail to adequately address teachers' ability to manage classrooms efficiently and holistically (Ozen & Yildirim, 2020), as well as the inappropriate educational qualifications of early childhood teachers (Rasmani et al., 2023).

Encouraging ECE teachers to return to formal education in order to earn a bachelor's degree is not an effective method of improving teaching skills. Despite the importance of academic qualifications, reality shows that less than 50% of current ECE teachers are graduates of ECE programs (Maryati et al., 2022). With 253,075 ECE institutions operating across Indonesia (World Bank, 2024), the demand for competent teachers continues to rise as the number of institutions and learners grows. This raises a fundamental question: How can the teaching skills of ECE teachers be improved in a short period? In this context, teaching skills training presents a relevant and effective solution. In contrast to the formal education pathway, which is time-consuming, training can have an immediate and visible impact on teaching practices (Loyalka et al., 2019). Structured and sustainable training can also improve teachers' ability to create quality learning experiences for students (Ota et al., 2021). The importance of this training is inseparable from the strategic role of ECE as a major foundation in life. Failure to learn at higher education levels often originates from suboptimal education during early childhood (Manning et al., 2019). Therefore, strengthening skills of ECE teachers through training is a crucial step in building an innovative, creative, and competitive generation for the future.

2. Literature Review

2.1 Educational Management

Education management is a multifaceted field that involves various theories and practices aimed at improving educational systems (Nguyen et al., 2023). It involves the strategic planning, organization, and administration of educational institutions to achieve optimal learning outcomes (Hatzigianni et al., 2023). Contingency Theory by Donaldson (2013) emphasizes that education management should adapt to the specific context and challenges of the environment. In line with the theory, training for ECE teachers in this study considered factors such as school size, demographics, and available resources to ensure teachers adjust to students' needs. This corresponds with the principle that schools adopting a contingency strategy tend to be more responsive to students' needs, typically improving educational outcomes.

The theories and practices take on unique dimensions in ECE management. ECE is characterized by its focus on holistic development, which includes cognitive, social, emotional, and physical growth (Sidiq & Na'imah, 2021). Effective management in ECE settings requires an in-depth understanding of child development theories. For example, Jean Piaget's cognitive development theory states that children progress through different stages of mental development,

ranging from sensorimotor to formal operational. Each stage reflects significant changes in how children think and understand the immediate world. Understanding these stages allows educators to design a curriculum corresponding with children's cognitive abilities at each stage of development.

Lev Vygotsky's social constructivism theory emphasizes the importance of social interaction in children's cognitive development. Vygotsky argued that children learn through interaction with adults and peers. Therefore, creating a collaborative and supportive learning environment is essential in ECE. This method helps children develop social and cognitive skills through structured group games and activities. By integrating Piaget and Vygotsky's theories into ECE management, teachers can create holistic and adaptive educational programs. Curricula designed with Piaget's stages of cognitive development and Vygotsky's principles of social constructivism are more effective in meeting children's diverse learning needs. In addition, learning environment that supports social interaction fosters learning experiences and helps children grow into intelligent, social individuals.

Managing ECE programs often involves collaboration with families and communities. Studies have shown the importance of family engagement in ECE, as it significantly influences children's learning and development (Chikhladze et al., 2024). Effective ECE managers should develop strategies to improve partnerships with parents and caregivers, fostering active participation in children's education (Gaspar et al., 2023). This collaborative strategy improves educational experience for children and builds a supportive community around the program (Prime, 2021).

Another crucial aspect of ECE management is the emphasis on professional development for teachers (Etokabeka et al., 2022). Given the unique challenges associated with teaching young children, ongoing training and support for teachers are essential. Studies have shown that high-quality professional development leads to improved teaching practices and, consequently, better outcomes for children (Chiu, 2020). Therefore, education managers should prioritize creating opportunities for teachers to grow professionally through workshops, mentoring, or collaborative planning sessions (Garrity & Catlett, 2022).

Effective education management is essential for the success of educational institutions, with various theories and practices guiding this field. In ECE, applying these management principles should consider the specific developmental needs of children, as well as the importance of family and community involvement (Liu, 2021). Therefore, education managers are expected to stay informed about best practices and emerging trends to create nurturing and effective learning environments for all students.

2.2 Teaching Skills

Teaching skills are fundamental to effective education and cover a range of competencies that teachers should develop to facilitate learning (Gelir, 2023).

Various theories have emerged to define and categorize these skills, providing a framework for understanding what constitutes effective teaching. A prominent theory is Constructivist Theory, emphasizing that learners construct understanding through experiences and interactions (Zhu & Atompag, 2023). Rooted in the work of theorists like Piaget and Vygotsky, the theory suggests teaching skills should include the ability to create engaging learning environments that encourage exploration and critical thinking (Efgivia et al., 2021). Studies have shown that teachers adopting constructivist methods foster deeper learning and improve students' engagement.

Another significant framework for understanding teaching skills is the Pedagogical Content Knowledge (PCK) model, developed by Padalkar (2022). The model posits that effective teaching requires knowledge of the subject matter and an understanding of how to teach the content effectively. PCK emphasizes the importance of teachers' ability to translate complex concepts into accessible forms for students (Aydın & Turhan, 2023). Studies have shown that teachers with strong PCK are more successful in promoting students' understanding and retention of material (Chan, 2022). This framework emphasizes the need for ongoing professional development to improve teachers' content knowledge and pedagogical skills (Alimuddin et al., 2021).

In addition to theoretical frameworks, the importance of interpersonal skills in teaching has been widely recognized. Effective communication, empathy, and relationship-building are crucial for creating a positive classroom environment (Burdelski, 2020). According to Li and Li (2019), teachers who have strong relationships with students tend to foster a supportive and motivating learning atmosphere. This corresponds with the Social Learning Theory proposed by Bandura (1976), emphasizing the role of social interactions in learning. Teachers who model positive behaviors and maintain open lines of communication can significantly impact students' motivation and engagement (Usher & Morris, 2023).

The role of reflective practice in developing teaching skills has gained prominence in educational literature. Reflective practice involves teachers critically analyzing teaching methods and students' interactions to identify areas for improvement (Walan & Enochsson, 2024). Rivas (2023) affirmed that reflection was vital for professional growth, allowing teachers to adapt practices based on feedback and experiences. Studies support the idea that reflective teachers are more adept at adjusting instructional strategies to meet the diverse needs of students, leading to improved educational outcomes (Li & Li, 2019).

Previous studies have shown that effective early childhood teachers have solid observational skills, assess children's developmental progress, and tailor teaching strategies accordingly (Foti, 2021). According to Ranta et al. (2023), teachers who observe and respond to children's cues can create more engaging and responsive learning experiences. This skill is particularly crucial in early childhood settings, where children's interests and developmental stages vary widely. Therefore, teachers should be flexible and adaptive, adopting various teaching methods to meet the diverse needs of students (Kırkıç & Çetinkaya, 2020).

Family engagement is essential to teaching skills in ECE. Studies have shown that when teachers actively involve families in learning process, children benefit from improved support and reinforcement of skills at home (Tympha et al., 2024). Therefore, effective early childhood teachers should develop strong communication skills to build family partnerships, ensuring parents are informed and engaged in children's education (Zdanevych et al., 2020). This collaborative method strengthens the home-school relationship and enriches learning environment.

Teaching skills are essential for effective education, with various theories and studies emphasizing the importance of pedagogical knowledge, interpersonal skills, reflective practice, and family engagement. In ECE, these skills should be adapted to meet the unique developmental needs of young learners (Akobi et al., 2022). As a result, teachers should engage in ongoing professional development to improve teaching skills and create nurturing, effective learning environments for all students.

3. Methodology

Mixed method is an essential strategy to understanding complex educational phenomena, specifically in the context of ECE in Surakarta, Indonesia. This study aimed to provide a more comprehensive picture of how education management training could improve teachers' teaching skills. The study design is provided as follows. Figure 1 presents a flow chart of the research methodology adopted in this study.

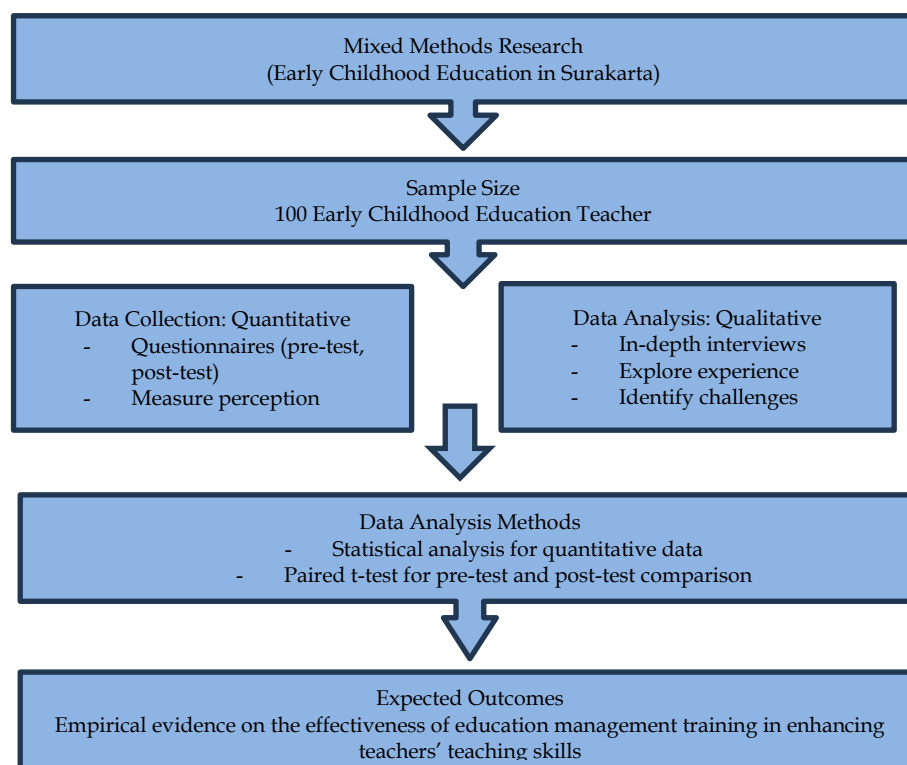


Figure 1: Research flow chart

The study involved 100 ECE teachers randomly selected to provide quantitative data through pre-test and post-test questionnaires. The qualitative phase was conducted through in-depth interviews with 10 teachers selected based on having less than 3 years of work experience. Furthermore, the interviews aimed to deepen the understanding of teachers' experiences with training, the challenges faced, and the long-term impact of training on teaching practices (von Soest, 2023). Table 1 summarises the indicators of the ECE teacher skills instrument.

Table 1: Indicators of the ECE teacher skills instrument

No	Indicator	Sub-indicator	Number of instruments
1	Basic and advanced questioning skills	Teachers can ask simple questions that stimulate children's active participation.	1
		Teachers can ask follow-up questions that encourage critical thinking and deep understanding in children.	2
2	Explanation skills	Teachers can give short and clear explanations for children's developmental level.	3
		Teachers use visual or concrete aids to reinforce the explanation of abstract concepts.	4
3	Reinforcement skills	Teachers give verbal praise appropriately to support children's positive behavior.	5
		Teachers use non-verbal reinforcement, such as smiles or gestures, to motivate children	6
4	Skills in using variety	Teachers use various learning methods (e.g., role-playing, singing, or drawing) to keep children's interest.	7
		Teachers use variations in tone of voice, body movements, or visual aids to clarify the material.	8
5	Opening and closing skills	Teachers commence the lesson with a relevant warm-up activity that captures children's attention.	9
		Teachers conclude the lesson with a summary inviting children to reflect on their learning.	10

6	Small group and individual teaching skills	Teachers can organize small groups for each child to participate actively.	11
		Teachers provide individualized attention that meets the developmental needs of each child.	12
7	Classroom management skills	Teachers create a conducive classroom atmosphere with clear rules and routines.	13
		Teachers can handle classroom disruptions effectively without disrupting the flow of learning.	14
8	Skills for guiding small group discussions	Teachers ask open-ended questions that encourage discussion and problem-solving in small groups.	15
		Teachers organize roles and guides for children to collaborate in small group discussions.	16

In the quantitative stage, the questionnaire comprised 16 items contextualized from Gultom et al. (2020), Bestiara (2021), Luo (2021), and Emidar and Indriyani (2023). The questionnaire was distributed to measure teachers' perceptions of the effectiveness of education management training. It contained structured questions designed to obtain data on changes in teaching skills before and after training (Hampson & McKinley, 2023). Subsequently, the collected data were analyzed using statistical methods to determine the extent of training's influence on improving teaching skills. Pre-test and post-test data were analyzed using paired t-tests to assess significant differences in teaching skills before and after training. The results were expected to provide empirical evidence on the effectiveness of education management training in improving the teaching skills of ECE teachers.

4. Results

Figure 2 graphically illustrates the results of how education management training impacted pre-school teachers. This study showed that education management training significantly improved the teaching skills of ECE teachers in Surakarta. Out of the 100 respondents who attended training, 85% reported significant improvements in understanding of classroom management, lesson planning, and time management. The results were also supported by interviews with the 10 teachers selected based on work experience of less than 3 years. Therefore, education management training helped teachers develop various teaching skills, such as asking questions, explaining, giving reinforcement, and managing the classroom. With improved skills, teachers can create a more effective and enjoyable learning process for children. Table 2 presents the thematic analysis of interviews with teachers.

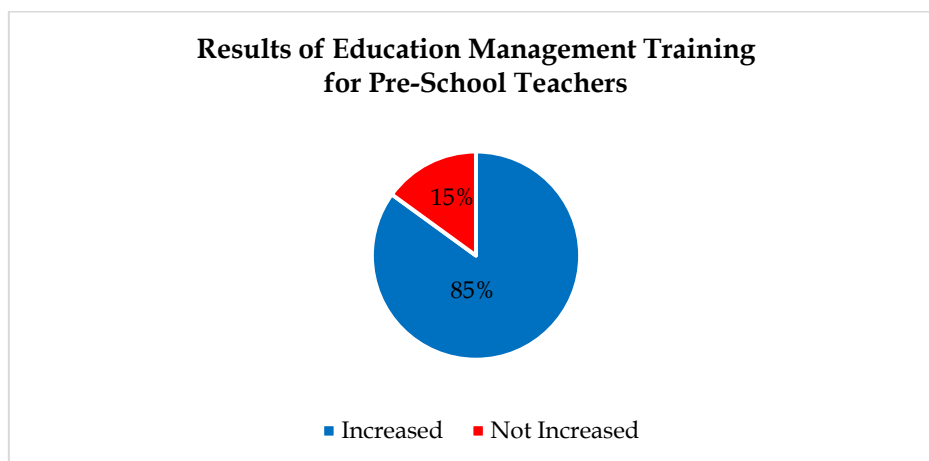


Figure 2: Results of education management training for pre-school teachers

Table 2: Thematic analysis of interviews with teachers

Skill indicator	Respondents' answer
Basic and advanced questioning skills	<ul style="list-style-type: none"> - R1: "After training, I understand better how to make follow-up questions relevant to children's experiences. Now children are more active in answering and discussing." - R2: "I learned that questions should be designed to encourage children to think critically. I often ask questions like 'Why do you think so?' or 'What would happen when...?'"
Explanation skills	<ul style="list-style-type: none"> - R3: "Training provided many examples of simplifying difficult concepts. Now I find it easier to explain things with visual aids." - R4: "I learned to give short but concise explanations. The children seem to understand the material better."
Reinforcement skills	<ul style="list-style-type: none"> - R5: "I now use variations of praise more often, such as 'You did great!', 'I am proud of you!', or 'That is a great idea!'. The children are more enthusiastic." - R6: "Non-verbal reinforcement such as thumbs up, clapping, and smiles are very effective. I also use award stickers to keep the children motivated."
Skill in using variety	<ul style="list-style-type: none"> - R7: "I now use songs, games, and body movements more often to make learning more interesting." - R8: "Training gave me many ideas for using props and digital media in learning. Children become more focused and interested."
Opening and closing skills	<ul style="list-style-type: none"> - R9: "I start the lesson with a sparking question or an interesting short story. The children seem more excited." - R10: "I always close the lesson now with a simple reflection, such as asking the children to mention what they learned today."

Small group and individual teaching skills	<ul style="list-style-type: none"> - R3: "Training taught me how to organize small groups effectively. I can now make sure every child is involved in the activities." - R7: "I understand each child's learning needs better. I can now give appropriate attention on an individual basis."
Classroom management skills	<ul style="list-style-type: none"> - R1: "I learned to manage the class by being calmer and less angry. The children became more disciplined without feeling pressured." - R5: "I am now better at managing time and ensuring all activities go according to plan."
Skills for guiding small group discussions	<ul style="list-style-type: none"> - R6: "Now I know how to make simple discussion rules and ensure every child speaks in small groups." - R10: "I use open-ended questions and allow children to share their opinions. The discussion has become more lively."

Training effectively equipped teachers with the necessary knowledge and skills to improve teaching quality. Teachers who attended training were able to apply more innovative and efficient techniques in the teaching-learning process, thereby better meeting the needs of students. In addition, training provided a deeper understanding of the importance of education management in creating a conducive learning environment.

Before training, 60% of teachers lacked confidence in teaching skills. However, this figure dropped to 15% after training, confirming a significant improvement in teaching skills. This change showed education management training offered both theoretical knowledge (Méndez et al., 2023) and practical skills directly applicable in daily teaching activities (Gelir, 2023). Specifically, the quantitative results showed an increase in the average teaching skills score from 49.80 before training to 89.55 after training, based on the self-assessment conducted by teachers. This increase showed education management training had a significant positive impact on the teaching skills of ECE teachers. Table 3 presents the results of the paired samples t-test.

Table 3: t-test results with SPSS software

		Paired samples test					t	df	Sig. (2-tailed)
		Paired differences							
		Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
					Lower	Upper			
Pair 1	Pre-test – Post-test	-39.750	10.857	1.086	-41.904	-37.596	-36.614	99	.000

The paired samples test results showed a significant difference between the pre-test and post-test, with the post-test mean 39.75 points higher. The standard deviation of 10.857 confirmed a slight variation. The 95% confidence interval (-41.904 to -37.596) and t-value of -36.614 with df = 99 supported these results. A p-value of <0.001 showed a statistically significant difference, reflecting a real and

measurable impact on improving teaching skills. In addition, about 78% of respondents confirmed training offered understanding techniques for managing diverse learners, which had been one of the main challenges.

5. Discussion

The interviews and thematic analysis results showed that education management training positively impacted ECE teachers' teaching skills. Teachers who had received training showed significant improvements, as those who previously tended to ask factual questions currently formulate reflective questions, facilitating children to think more deeply (Partee et al., 2024). Teachers were also better at simplifying complex concepts for children by using visual aids that facilitated understanding (Zou & Ratana-Olarn, 2023).

Education management training helps teachers reinforce positive behaviors in children through both verbal and non-verbal praise. It provides variety of learning methods, enabling teachers to create innovative, creative, and enjoyable learning experiences for children (Montesinos et al., 2024). The ability to effectively open and close lessons has also improved, as evidenced by teachers ability to create engaging lesson openings, such as using games when entering the classroom, and meaningful closures through reflection, making learning process more impactful for children (Anees, 2024; Chudzik et al., 2024).

Teachers have gained more confidence in fostering a positive, calm, and conducive classroom atmosphere for learning, and have become more capable of ensuring active participation from all children. This is shown by teachers' use of open-ended questions and providing opportunities for children to share opinions, typically improving children's communication and cooperation skills (Catalano et al., 2023). Therefore, this training is not only beneficial for teachers but also has a significant positive impact on early childhood development in Surakarta.

The results were supported by Vygotsky's Social Constructivism Theory, emphasizing that children's active involvement in learning activities is crucial for development (Vişcu & Watkins Jr, 2021). Vygotsky stated that social interaction and children's active participation in learning process were essential for optimal cognitive development (Prestes et al., 2023). Based on this theory, education management training emphasizes the importance of learner-focused classroom management, facilitating learning effectiveness (Rivas et al., 2023). By applying this method, teachers can create a more dynamic learning environment responsive to the needs of individual children, thereby fostering higher levels of engagement and motivation (Heikka et al., 2023).

The results were consistent with Bandura's (1963) assertion that, in terms of self-efficacy, teachers who were more confident in managing the classroom tended to be more successful in implementing effective teaching strategies. Bandura argued that high self-efficacy in teachers improves the ability to address challenges in teaching and adopt innovative methods (Lim, 2023). Educational management training that improves teachers' self-efficacy positively impacts teaching quality (Wei & Yang, 2023), as confident teachers tend to create meaningful and engaging

learning experiences for children (Erol & Erol, 2024). Therefore, this training improves teachers' technical skills and strengthens self-efficacy in managing the classroom and implementing learner-centered strategies.

In terms of education management, teachers reported that training provided better strategies for addressing challenges in the classroom. Previously, about 55% of teachers felt overwhelmed when facing unfavorable classroom situations, but only 20% reported the same after training. This showed training successfully provided practical and effective solutions applicable in real classroom situations (Madsen et al., 2023). With improved strategies, teachers can manage the classroom in a calmer, more structured manner, creating a more conducive learning environment.

Training improved managerial skills, particularly in effective communication with children and managing group dynamics (Dunekacke et al., 2022). Teachers learned how to communicate more effectively, understand the needs and characteristics of each child (Kırkıç & Çetinkaya, 2020), and better manage interactions between learners (Zhang et al., 2023). Proper organization of group dynamics helps create a harmonious and productive learning atmosphere (Figueroa-Céspedes, 2023). With improved managerial skills, teachers feel more confident in facing challenges in learning process (Erol & Erol, 2024), typically improving the quality of ECE in Surakarta.

Educational management theory proposed by Gunter (2012) emphasizes the importance of teachers' ability to lead and manage the classroom as a small organization. Based on analysis, training strengthened teachers' skills in managing social interactions within the classroom (Tahiri et al., 2022), a key element in Gunter's theory of school organization. With better management skills, teachers can create a more structured and harmonious learning environment to improve learning effectiveness (Sulaiman et al., 2023). Training also helped teachers understand classroom dynamics and how to manage various situations that could arise (Ha et al., 2023), facilitating responsiveness to learners' needs.

Participating teachers reported training improved the ability to facilitate collaborative learning, which is particularly important in ECE (Bailey & Knell, 2024). Collaborative learning allows children to work collectively, share ideas, and develop social skills early on (Lavigne et al., 2023). By facilitating collaborative learning, teachers can create a more inclusive classroom atmosphere and support children's holistic development (Watts & Pattnaik, 2023). This corresponded with the principles of ECE, emphasizing the importance of social interaction and experiential learning (Draper et al., 2023). Therefore, training improves teachers' technical skills and strengthens the ability to create learning environments that support children's holistic development.

Generally, this confirmed the importance of education management training in improving teachers' teaching skills. Teachers became more skilled in managing the classroom and designing lessons and felt more motivated to continue learning and improve the quality of teaching. Training provided necessary tools and

strategies to address daily challenges in the classroom and create a more effective and enjoyable learning environment for children. With better skills, teachers can design learning activities that are more creative and suited to learners' needs, typically improving children's learning outcomes.

The results were supported by Gagne's (2014) explanation of work motivation, emphasizing that developing skills and competencies through training could increase motivation and job satisfaction. According to Gagne (2014), achievement, recognition, and increased responsibility through training can improve teachers' intrinsic motivation (Aggarwal, 2023). Teachers tend to be more satisfied with jobs and eager to continue developing when they are competent and confident in teaching (Lee et al., 2023). This positively impacts the quality of classroom teaching and fosters a culture of continuous learning among teachers, typically improving the overall quality of education.

6. Conclusion

In conclusion, this study showed education management training significantly improved the teaching skills of ECE teachers in Surakarta. Training aimed to equip teachers with the knowledge and practical skills required in the contemporary educational landscape. Participants reported increased confidence in facing classroom challenges, improving teaching effectiveness and students' learning experiences. This study also showed the importance of investing in education management training for the professional development of ECE teachers, with an emphasis on child-centered learning. However, there were limitations, as the study focused on a particular sample, limiting the application of the results to the broader population. The data collection methods used could have biases, and the short duration of investigation might not capture long-term changes. Nevertheless, the study contributed to the literature on the effectiveness of education management training, providing evidence that could guide policymakers and program developers in designing more effective interventions to improve the quality of ECE. It also provided valuable insights into how education management training could improve teaching quality and learning outcomes. Considering the limitations, future studies were expected to further explore the long-term impacts and expand the sample size to obtain a more comprehensive and reliable picture. Continued investment in this type of training could be one of the keys to creating an optimal learning environment for children.

7. Acknowledgment

The authors are grateful to the Research and Community Service Institution of Sebelas Maret University for funding through the ECE Management Group Research Grant scheme in 2024, with contract number 194.2/UN27.22/PT.01.03/2024

8. References

- Aboagye, M. O., Antwi, C. O., Asare, K., Seth, N., Gyasi, F., & Kwasi, F. (2023). Job stress and teacher burnout in preschools: Preliminary assessment of the buffer effect of job resources in the stressor-strain model in a lower-middle-income country. *Early Years, 44*(3-4), 781-800. <https://doi.org/10.1080/09575146.2023.2237207>
- Aggarwal, P. J. (2023). Service Quality Dimensions in the Context of Herzberg Two Factor

- Theory: An Exploratory Study of India and Taiwan. *International Journal of Asian Business and Information Management (IJABIM)*, 14(1), 1-14. <https://doi.org/10.4018/IJABIM.325231>
- Akobi, T. O., Okeke, C. I., & Aye, E. N. (2022). Teachers' classroom management practices as a determinant of pre-schoolers' task persistence. Implication for early childhood development. *Cypriot Journal of Educational Sciences*, 17(9), 3503-3515. <https://doi.org/10.18844/cjes.v17i9.7264>
- Akyol, N. A. (2023). Examination on 21st-century skills of preschool teachers. *e-International Journal of Educational Research*, 14(1), 57-70. <https://doi.org/10.19160/e-ijer.1168267>
- Alimuddin, Z., Tjakraatmadja, J. H., Ghazali, A., & Ginting, H. (2021). Improving pedagogical content knowledge (PCK) through a blended model of PCK and action learning. *Teacher Development*, 25(5), 622-646. <https://doi.org/10.1080/13664530.2021.1935311>
- Anees, A. (2024). Teacher education for Early Childhood Care and Education. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 10(2), 378-380. <https://doi.org/10.36713/epra15863>
- Aras, S. (2024). Employing learning-oriented assessment to develop Early Childhood preservice teachers' interaction skills. *Learning: Research and Practice*, 10(1), 44-57. <https://doi.org/10.1080/23735082.2023.2216210>
- Åström, F., Björck-Åkesson, E., Sjöman, M., & Granlund, M. (2022). Everyday environments and activities of children and teachers in Swedish preschools. *Early Child Development and Care*, 192(2), 187-202. <https://doi.org/10.1080/03004430.2020.1754209>
- Aydın, E., & Turhan, G. M. (2023). Exploring primary school teachers' pedagogical content knowledge in science classes based on PCK model. *Journal of Pedagogical Research*, 7(3), 70-99. <https://doi.org/10.33902/JPR.202318964>
- Bai, H., Duan, H., Kroesbergen, E. H., Leseman, P. P. M., & Hu, W. (2020). The benefits of the Learn to Think Program for preschoolers' creativity: An explorative study. *Journal of Creative Behavior*, 54(3), 699-711. <https://doi.org/10.1002/jobc.404>
- Bailey, E., & Knell, E. (2024). Collaborative service-learning: Sharing music in a preschool classroom. *Journal of Music Teacher Education*, 33(2), 86-103. <https://doi.org/10.1177/10570837231189823>
- Bandura, A. (1963). The role of imitation in personality development. *The Journal of Nursery Education*, 18(3), 1-9. <https://www.scribd.com/doc/280828794/The-Role-of-Limitation-in-Personality-Development>
- Bandura, A. (1976). *Social learning theory*. Prentice-Hall. <https://libgen.is/book/index.php?md5=D361C0344BEE96F7AB9D34B600C7EE E7>
- Bestiara, B., Arifmiboy, A., & Lismay, L. (2021). The students' perception on teachers' basic teaching skills in English classroom. *ELP (Journal of English Language Pedagogy)*, 6(2), 1-9. <https://doi.org/https://doi.org/10.36665/ELP.V6I2.392>
- Binh, N. N. (2023). Solutions to improve the quality of professional ethics for students of preschool education in the path of fundamental and comprehensive renovation of education and training in Vietnam. *Revista de Gestão e Secretariado (Management and Administrative Professional Review)*, 14(8), 14600-14614. <https://doi.org/10.7769/gesec.v14i8.2700>
- Bourbour, M. (2023). Using digital technology in Early Education teaching: Learning from teachers' teaching practice with interactive whiteboard. *International Journal of Early Years Education*, 31(1), 269-286. <https://doi.org/10.1080/09669760.2020.1848523>
- Burdelski, M. (2020). 'Say can I borrow it': Teachers and children managing peer conflict in a Japanese preschool. *Linguistics and Education*, 59, Article 100728.

- <https://doi.org/10.1016/j.linged.2019.04.002>
- Cai, H. (2024). Innovation-driven development strategy of preschool education in the Internet+ era. *International Journal of Web-Based Learning and Teaching Technologies*, 19(1), 1-13. <https://doi.org/10.4018/IJWLTT.337601>
- Catalano, H., Albulescu, I., Stan, C., Mestic, G., & Ani-Rus, A. (2023). Child-centered approach through slow education principles: A view to child personality development in Early Childhood. *Sustainability (Switzerland)*, 15(11), Article 8611. <https://doi.org/10.3390/su15118611>
- Chan, K. K. H. (2022). A critical review of studies using the pedagogical content knowledge map approach. *International Journal of Science Education*, 44(3), 487-513. <https://doi.org/10.1080/09500693.2022.2035011>
- Chikhladze, N., Rusadze, N., & Chikhladze, L. (2024). Challenges of the management and funding of the preschool education system in Georgia. *Bulletin of the Georgian National Academy of Sciences*, 18(2), 199-204. <https://www.scopus.com/inward/record.uri?partnerID=HzOxMe3b&scop=85200357905&origin=inward>
- Chiu, C. F. (2020). Facilitating K-12 teachers in creating apps by visual programming and project-based learning. *International Journal of Emerging Technologies in Learning*, 15(1), 103-118. <https://doi.org/10.3991/ijet.v15i01.11013>
- Chudzik, M., Corr, C., & Fisher, K. W. (2024). Trauma-informed care: The professional development needs of Early Childhood Special Education teachers. *Journal of Early Intervention*, 46(1), 113-129. <https://doi.org/10.1177/10538151231164898>
- d'Alonzo, L., Zanfroni, E., Maggolini, S., & Molteni, P. (2023). Promoting inclusion in preschools between pedagogical competences and technological supports: The role of a WebApp in the early detection of developmental difficulties for children aged 06 years. In M. Antona, & C. Stephanidis (Eds.), *Lecture notes in computer science (including subseries lecture notes in artificial intelligence and lecture notes in bioinformatics)* (pp. 234-246). Springer. https://doi.org/10.1007/978-3-031-35897-5_18
- Donaldson, L. (2013). *The contingency theory of organizations*. Sage Publications.
- Draper, C. E., Cook, C. J., Howard, S. J., Makaula, H., Merkley, R., Mshudulu, M., Tshetu, N., & Scerif, G. (2023). Caregiver perspectives of risk and protective factors influencing early childhood development in low-income, urban settings: A social ecological perspective. *Infant and Child Development*, 32(3), e2417. <https://doi.org/10.1002/icd.2417>
- Dunekacke, S., Jegodtka, A., Koinzer, T., Eilerts, K., & Jenßen, L. (2022). *Early Childhood teachers' professional competence in mathematics*. Routledge Taylor and Francis Group. <https://www.routledge.com/Early-Childhood-Teachers-Professional-Competence-in-Mathematics>
- Efgivia, M. G., Adora Rinanda, R. Y., Suriyani, Hidayat, A., Maulana, I., & Budiarto, A. (2021). Analysis of constructivism learning theory [Conference session]. *Proceedings of the 1st UMGESHIC International Seminar on Health, Social Science and Humanities (UMGESHIC-ISHSSH 2020)* (pp. 208-212). Atlantis Press. <https://doi.org/10.2991/assehr.k.211020.032>
- Emidar, E., & Indriyani, V. (2023). The effect of learning planning skills and teaching material development skill on teacher teaching skills. *JPPi (Jurnal Penelitian Pendidikan Indonesia)*, 9(3), 1804-1813. <https://doi.org/10.29210/020232814>
- Erol, A., & Erol, M. C. (2024). The relationship between attitude towards STEM education, self-efficacy in STEM education, and constructivist beliefs of Early Childhood teachers. *Journal for STEM Education Research*, 7, 12-28. <https://doi.org/10.1007/s41979-023-00111-y>
- Etokabeka, E., van Heerden, J., & du Preez, H. (2022). Exploring South African preschool teachers' roles and responsibilities with executive functions. *South African Journal*

- of *Childhood Education*, 12(1), a1141. <https://doi.org/10.4102/sajce.v12i1.1141>
- European Commission. (2023, May 22). *Innovation in Early Childhood Education and Care: Outdoor education and transitions*. <https://school-education.ec.europa.eu/en/discover/practices/innovation-early-childhood-education-and-care-outdoor-education-and-transitions>
- Figueroa-Céspedes, I. (2023). Professional identity of Early Childhood educators: Biographical traces of their childhood and adolescence. *Psicoperspectivas*, 22(3), 1–2. https://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0718-69242023000300184&lng=en
- Fleer, M., & Li, L. (2023). Curriculum reforms as a productive force for the development of new play practices in rural Chinese kindergartens. *International Journal of Early Years Education*, 31(1), 63–78. <https://doi.org/10.1080/09669760.2020.1778447>
- Foti, P. E. (2021). The ST(R)E(A)M methodology in kindergarten: A teaching proposal for exploratory and discovery learning. *European Journal of Education and Pedagogy*, 2(1), 1–6. <https://doi.org/10.24018/ejedu.2021.2.1.21>
- Friedman-Krauss, A. H., Barnett, W. S., Garver, K. A., Hodges, K. S., Weisenfeld, G. G., Gardiner, B. A., & Jost, T. M. (2023). *The state of preschool 2022: State preschool yearbook*. National Institute for Early Education Research (NIEER). https://nieer.org/sites/default/files/2023-09/yb2022_fullreport.pdf
- Gagne, M. (Ed.). (2014). *The Oxford handbook of work engagement, motivation, and self-determination theory*. Oxford University Press.
- Garrity, S., & Catlett, C. (2022). Preparing equitable and inclusive Early Childhood educators: Three evidence-based strategies. *Young Children*, 77(1). <https://www.naeyc.org/resources/pubs/yc/spring2022/equity-teachers>
- Gaspar, M. F., Patras, J., Hutchings, J., Homem, T., Azevedo, A. F., Pimentel, M., Baptista, E., Major, S., Vale, V., & Seabra-Santos, M. (2023). Effects of a teacher classroom management program on preschool teachers' practices and psychological factors: A randomized trial with teachers of children from economically disadvantaged families. *Early Education and Development*, 34(3), 626–647. <https://doi.org/10.1080/10409289.2022.2063612>
- Gelir, I. (2023). The effects of the COVID-19 pandemic on preschool teachers' identity. *Early Years: An International Research Journal*, 44(3–4), 751–764. <https://doi.org/10.1080/09575146.2023.2236324>
- Godhe, A.-L. (2024). Teachers' experience of the breakdown of infrastructures during the pandemic. *Education and Information Technologies*, 29, 5651–5671. <https://doi.org/10.1007/s10639-023-12027-6>
- Gong, Y., MacPhail, A., & Young, A. M. (2024). Chinese higher education-based physical education teacher educators' professional learning needs for involvement in research activities. *Professional Development in Education*, 50(4), 638–654. <https://doi.org/10.1080/19415257.2021.1895286>
- Gultom, S., Hutauruk, A. F., & Ginting, A. M. (2020). Teaching skills of teacher in increasing student learning interest. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 3(3), 1564–1569. <https://doi.org/10.33258/BIRCI.V3I3.1086>
- Gunter, H. M. (2012). *Leadership and the reform of education*. The Policy Press. <file:///C:/Users/User/Downloads/978-1-8474-2768-7-front-1.pdf>
- Ha, V. T., Hai, B. M., Mai, D. T. T., & van Hanh, N. (2023). Preschool STEM activities and associated outcomes: A scoping review. *International Journal of Engineering Pedagogy*, 13(8), 100–116. <https://doi.org/10.3991/ijep.v13i8.42177>
- Haines, B. A., Hong, P. Y., Immel, K. R., & Lishner, D. A. (2023). The mindfulness-based kindness curriculum for preschoolers: An applied multi-site randomized control trial. *Mindfulness*, 14, 2195–2210. <https://doi.org/10.1007/s12671-023-02210-8>

- Hampson, T., & McKinley, J. (2023). Problems posing as solutions: Criticising pragmatism as a paradigm for mixed research. *Research in Education*, 116(1), 124–138. <https://doi.org/10.1177/00345237231160085>
- Hatzigianni, M., Stephenson, T., Harrison, L. J., Waniganayake, M., Li, P., Barblett, L., Hadley, F., Andrews, R., Davis, B., & Irvine, S. (2023). The role of digital technologies in supporting quality improvement in Australian Early Childhood Education and Care settings. *International Journal of Child Care and Education Policy*, 17, Article 5. <https://doi.org/10.1186/s40723-023-00107-6>
- Heikka, J., Hirvonen, R., Kahila, S., Pitkäniemi, H., Yada, T., & Hujala, E. (2023). Links between teachers' planning, assessment and development time and implementation of curriculum in Early Childhood Education. *Early Years*, 43(4–5), 1102–1117. <https://doi.org/10.1080/09575146.2022.2059067>
- Kayratdinovna, N. Z. (2023). Preparation of students of the preschool educational direction for the education of preschool children. *European Journal of Pedagogical Initiatives and Educational Practices*, 1(2), 199–203. <https://europeanscience.org/index.php/4/article/view/143>
- Kırkıç, K. A., & Çetinkaya, F. (2020). The relationship between preschool teachers' self-efficacy beliefs and their teaching attitudes. *International Journal of Evaluation and Research in Education*, 9(4), 807–815. <https://doi.org/10.11591/ijere.v9i4.20670>
- Lavigne, H. J., Presser, A. L., Rosenfeld, D., Cuellar, L., Vidiksis, R., Ferguson, C., Wolsky, M., & Andrews, J. (2023). Computational thinking with families: Studying an at-home media intervention to promote joint media engagement between preschoolers and their parents. *Early Childhood Research Quarterly*, 64(4), 102–114. <https://doi.org/10.1016/j.ecresq.2023.05.009>
- Lee, C. H., Wang, C., Fan, X., Li, F., & Chen, C. H. (2023). Artificial intelligence-enabled digital transformation in elderly healthcare field: Scoping review. *Advanced Engineering Informatics*, 55, 1–20. <https://doi.org/10.1016/j.aei.2023.101874>
- Li, Z., & Li, L. (2019). An examination of kindergarten teachers' beliefs about creative pedagogy and their perceived implementation in teaching practices. *Thinking Skills and Creativity*, 32, 17–29. <https://doi.org/10.1016/j.tsc.2019.03.001>
- Lim, E. M. (2023). The effects of pre-service Early Childhood teachers' digital literacy and self-efficacy on their perception of AI education for young children. *Education and Information Technologies*, 28, 12969–12995. <https://doi.org/10.1007/s10639-023-11724-6>
- Liu, H. (2021). Policy and practice in the quality evaluation of kindergarten education. *Chinese Education and Society*, 54(1–2), 38–49. <https://doi.org/10.1080/10611932.2021.1949207>
- Loyalka, P., Popova, A., Li, G., & Zhaolei, S. (2019). Does teacher training actually work? Evidence from a large scale randomized evaluation of a national teacher training program. *American Economic Journal: Applied Economics*, 11(3), 128–154. <https://www.aeaweb.org/articles/pdf/doi/10.1257/app.20170226>
- Lundberg, A., Lindh, C., & Collberg, P. (2024). Are newly qualified preschool teachers ready for today's mandate? Principals' views in Sweden. *Journal of Early Childhood Teacher Education*, 45(352–370). <https://doi.org/10.1080/10901027.2024.2349050>
- Luo, W., Berson, I. R., Berson, M. J., & Park, S. (2023). An exploration of Early Childhood teachers' technology, pedagogy, and content knowledge (TPACK) in Mainland China. *Early Education and Development*, 34(4), 963–978. <https://doi.org/10.1080/10409289.2022.2079887>
- Luo, X. (2021). Quantitative analysis on the evaluation indicators of teaching abilities of physical education teachers in colleges and universities. *International Journal of Emerging Technologies in Learning (IJET)*, 16(18), 143–155. <https://doi.org/10.3991/ijet.v16i18.25661>

- Madsen, S. S., O'Connor, J., Janeš, A., Klančar, A., Brito, R., Demeshkant, N., Konca, A. S., Krasin, S., Saure, H. I., Gjesdal, B., Ludgate, S., Jwaifell, M., Almuhtadi, R., & Thorvaldsen, S. (2023). International perspectives on the dynamics of pre-service Early Childhood teachers' digital competences. *Education Sciences*, 13(7), Article 633. <https://doi.org/10.3390/educsci13070633>
- Manning, M., Wong, G., Fleming, C., & Garvis, S. (2019). Is teacher qualification associated with the quality of the Early Childhood Education and Care environment? A meta-analytic review. *Review of Educational Research*, 89(3), 370–415. <https://doi.org/10.3102/0034654319837540>
- Maryati, S., Dwi Lestari, G., & Riyanto, Y. (2022). The effectiveness of mentoring in the implementation of the project-based learning (PjBL) model in the independent curriculum for PAUD educators. *European Journal of Education and Pedagogy*, 3(6), 12–18. <https://doi.org/10.24018/ejedu.2022.3.6.471>
- Méndez, V. G., Marín-Suelves, D., Vidal-Esteve, M. I., & Ramón-Llin, J. (2023). Digital competence of training teachers: Results of a teaching innovation project. *Education Sciences*, 13(2), Article 162. <https://doi.org/10.3390/educsci13020162>
- Montesinos, C. H., Madrona, P. G., Puente, L. L., Brian, A., & Saraiva, L. (2024). The relationship between Early Childhood teachers' professional development in physical education and children's fundamental movement skills. *Early Education and Development*, 35(5), 950–963. <https://doi.org/10.1080/10409289.2023.2221766>
- Nguyen, H. T., Tran, V.-T., Nguyen, S. T., & Trinh, T. V. (2023). A literature review on the management of preschool teacher's professional competence development in the 4.0 Industrial Revolution. *Journal of Law and Sustainable Development*, 11(9), e1060. <https://doi.org/10.55908/sdgs.v11i9.1060>
- Nurdyansyah, F., Muflihati, I., Muliani Dwi Ujjianti, R., Novita, M., Kusumo, H., Mujiono, & Charles Ryan, J. (2022). Indonesian character building strategy: Planning the Pancasila Student Profile Strengthening Project in Kurikulum Merdeka. *KnE Social Sciences*, 7(19), 362–369. <https://doi.org/10.18502/kss.v7i19.12456>
- Onaolapo, A. A., Makhasane, S. D., & Adebola, O. O. (2023). Rethinking teachers' training process: Preservice teachers' experiences of teaching in South African rurally located schools. *Journal of Educational and Social Research*, 13(4), 178–187. <https://doi.org/10.36941/jesr-2023-0100>
- Ostinelli, G., & Crescentini, A. (2024). Policy, culture and practice in teacher professional development in five European countries. A comparative analysis. *Professional Development in Education*, 50(1), 74–90. <https://doi.org/10.1080/19415257.2021.1883719>
- Ota, M., Nagata, A., & Ferreira, T. (2021). Blended teacher training program: Rethinking learning spaces and evaluating active learning in basic education schools. In A. Moura, P. Reis, & M. Cordeiro (Eds.), *Handbook of research on determining the reliability of online assessment and distance learning* (pp. 337–358). IGI Global Scientific Publishing. <https://doi.org/10.4018/978-1-7998-4769-4.ch014>
- Ozen, H., & Yildirim, R. (2020). Teacher perspectives on classroom management. *International Journal of Contemporary Educational Research*, 7(1), 99–113. <https://doi.org/10.33200/ijcer.645818>
- Padalkar, S., Ramchand, M., Shaikh, R., & Vijaysimha, I. (2022). *Science education: Developing pedagogical content knowledge*. Routledge. <https://libgen.is/book/index.php?md5=256ACEC9C7888DDBE5F6310E9DBCD6D7>
- Partee, A., Williford, A., Downer, J., Conway, J., & Carroll, E. (2024). Narrowing the research-to-practice gap in effective professional development in a state preschool program: Describing the process and findings from a research-practice partnership. *Early Childhood Research Quarterly*, 60(1), 157–167. <https://doi.org/10.1016/j.ecresq.2023.09.004>

- Prestes, Z., Pirola, J., & Silva, G. (2023). Communication of children of preschool and school age during distance learning in the conditions of COVID-19. *Preschool Education: Global Trends*, 3, 30–42.
<https://doi.org/10.31470/2786-703x-2023-3-30-42>
- Prime, H., Andrews, K., McTavish, J., Harris, M., Janus, M., Bennett, T., & Gonzalez, A. (2021). The application of positive parenting interventions to academic school readiness: A scoping review. *Child: Care, Health and Development*, 47(1), 1–14.
<https://doi.org/10.1111/cch.12810>
- Ranta, S., Kangas, J., Harju-Luukkainen, H., Ukkonen-Mikkola, T., Neitola, M., Kinos, J., Sajaniemi, N., & Kuusisto, A. (2023). Teachers' pedagogical competence in Finnish Early Childhood Education: A narrative literature review. *Education Sciences*, 13(8), Article 791. <https://doi.org/10.3390/educsci13080791>
- Rasmani, U. E. E., Palupi, W., Jumiatmoko, J., Zuhro, N. S., & Fitrianingtyas, A. (2021). Improving Early Childhood Education management through problem identification of institutions. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(1), 307–314. <https://doi.org/10.31004/obsesi.v6i1.888>
- Rasmani, U. E. E., Sarifudin, A., Wahyuningsih, S., Nurjanah, N. E., Jumiatmoko, Zuhro, N. S., Fitrianingtyas, A., Winarji, B., & Widiastuti, Y. K. W. (2023). Advertising management of Early Childhood Education institution: Challenges, opportunities, and development. *European Journal of Educational Research*, 12(4), 1731–1742. <https://doi.org/10.12973/eu-jer.12.4.1731>
- Rivas, A., Mooss, A., Pontier, C. H., Romillo, J., & Muñoz, E. (2023). The effect of universal teacher-child interaction training on Hispanic teachers' sense of self-efficacy in Early Childhood Education and Care settings. *International Journal of Child Care and Education Policy*, 17, Article 12. <https://doi.org/10.1186/s40723-023-00115-6>
- Sidiq, A. M., & Na'imah. (2021). Marketing of PAUD services in the pandemic period in PG-TK Pelangi Ceria (Based on sementation, positioning, and targeting). *Nidhomul Haq: Jurnal Manajemen Pendidikan Islam*, 6(1), 1–13.
<https://www.academia.edu/64136754/>
- Sulaiman, A., Rahman, H., Ali, N., Shaikh, A., Akram, M., & Lim, W. H. (2023). An augmented reality PQRST based method to improve self-learning skills for preschool autistic children. *Evolving Systems*, 14, 859–872.
<https://doi.org/10.1007/s12530-022-09472-y>
- Sun, J., Wu, H., & Shi, S. (2023). A research of the evaluation of preschool education resource allocation level and spatio-temporal differences: Based on repeated indicators method and Theil Index. *Heliyon*, 9(6), e16362.
<https://doi.org/10.1016/j.heliyon.2023.e16362>
- Tahiri, A., Kuliçi, M., & Hasani, A. (2022). Interdisciplinary projects, fusing of standards in the field of food sciences with the competence of thinking and speaking in preschool. *Journal of Hygienic Engineering and Design*, 41, 456–463.
<https://keypublishing.org/jhed/jhed-volumes/jhed-volume-41-fpp-34>
- Tympa, E., & Karavida, V. (2024). State vs. private preschool setting: Assessing school quality for a successful learning environment. *International Journal of Early Years Education*, 32(2), 360–373. <https://doi.org/10.1080/09669760.2023.2260413>
- Tympa, E., Karavida, V., Nousia, A., & Kanellopoulou, E. (2024). Parents' perspectives on teaching preschool children on financial saving and sharing need. *Journal of Social Studies Education Research*, 15(1), 38–56.
<https://www.scopus.com/inward/record.uri?partnerID=HzOxMe3b&scp=85188344632&origin=inward>
- Usher, E. L., & Morris, D. B. (2023). Self-efficacy. *Encyclopedia of Mental Health (Third Edition)*, 117–124. <https://doi.org/10.1016/B978-0-323-91497-0.00085-0>

- Viñuela, Y., & de Caso Fuertes, A. M. (2023). Improving motivation in pre-school education through the use of project-based learning and cooperative learning. *Frontiers in Education, 7*, 1–19. <https://doi.org/10.3389/feduc.2022.1094004>
- Vişcu, L.-I., & Watkins Jr, C. E. (2021). Constructivism in clinical supervision: The supervision pyramid and the constructivist paradigm of learning. In *A guide to clinical supervision: The supervision pyramid* (pp. 39–49). Academic Press. <https://doi.org/10.1016/B978-0-12-821717-7.00005-4>
- von Soest, C. (2023). Why do we speak to experts? Reviving the strength of the expert interview method. *Perspectives on Politics, 21*(1), 277–287. <https://doi.org/10.1017/S1537592722001116>
- Vong, K. I., Vong, S. K., Liu, Q. M., & Cheng, D. P. W. (2023). An exploratory study on normative cohesiveness of high-quality preschool teacher education in urban north-western China. *International Journal of Early Years Education, 31*(4), 924–940. <https://doi.org/10.1080/09669760.2021.1977613>
- Walan, S., & Enochsson, A. B. (2024). Affordances and obstacles when integrating digital tools into science teaching in preschools. *Research in Science and Technological Education, 42*(3), 533–552. <https://doi.org/10.1080/02635143.2022.2116423>
- Watts, R., & Pattnaik, J. (2023). Perspectives of parents and teachers on the impact of the COVID-19 pandemic on children’s socio-emotional well-being. *Early Childhood Education Journal, 51*, 1541–1552. <https://doi.org/10.1007/s10643-022-01405-3>
- Wei, Y., & Yang, X. (2023). Evaluation and improvement methods of preschool children’s education level based on computer technology. *Computer-Aided Design and Applications, 20*, 112–122. [https://www.cad-journal.net/files/vol_20/CAD_20\(S4\)_2023_112-122.pdf](https://www.cad-journal.net/files/vol_20/CAD_20(S4)_2023_112-122.pdf)
- World Bank. (2024). *Assessment of Indonesia’s Early Childhood Education and Development Accreditation Process*. World Bank. <https://doi.org/10.1596/40933>
- Worldometer. (n.d.). *Indonesia population (LIVE)*. Worldometer. <https://www.worldometers.info/world-population/indonesia-population/>
- Zdanevych, L. V., Kruty, K. L., Tsehelnik, T. M., Pisotska, L. S., & Kazakova, N. V. (2020). The formation of key competences in the training process of preschool education specialists (Experience of the United Kingdom, Germany, Ukraine). *International Journal of Higher Education, 9*(7), 196–206. <https://doi.org/10.5430/ijhe.v9n7p196>
- Zhang, G., Qin, Y., Liu, S., Chen, X., & Zhang, W. (2023). Bibliometric analysis of research trends and topic areas in traditional Chinese medicine therapy for lymphoma. *Pharmaceutical Biology, 62*(1), 13–21. <https://doi.org/10.1080/13880209.2023.2288697>
- Zhang, J., Pan, Q., Zhang, D., Meng, B., & Hwang, G. J. (2024). Effects of virtual reality based microteaching training on pre-service teachers’ teaching skills from a multi-dimensional perspective. *Journal of Educational Computing Research, 62*(3), 875–903. <https://doi.org/10.1177/07356331231226179>
- Zhou, R. (2023). Preschool education should be included in compulsory schooling in China. *Journal of Humanities, Arts and Social Science, 7*(7), 1372–1377. <https://doi.org/10.26855/jhass.2023.07.025>
- Zhu, L., & Atompag, S. M. (2023). The application of the constructivism theory in enhancing classroom teaching. *Journal of Contemporary Educational Research, 7*(12), 209–213. <https://doi.org/10.26689/jcer.v7i12.5792>
- Zou, X., & Ratana-Olarn, T. (2023). Empowering preservice teachers: A mentored blended learning approach with MOOCs to elevate skills and self-efficacy. *Pakistan Journal of Life and Social Sciences, 21*(2), 627–635. <https://doi.org/10.57239/PJLSS-2023-21.2.006>