

Growth Mindset and Professional Development among Early Childhood Educators: An Empirical Survey in Early Childhood Education Settings

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Abstract

Professional development for Early Childhood Education (ECE) teachers requires a growth mindset to address instructional challenges and limited access to training, particularly in rural areas. This study aims to examine the association between growth mindset and professional development orientation among ECE teachers in Manggarai Regency, East Nusa Tenggara, Indonesia. Using a descriptive quantitative survey approach, data were collected through a closed-ended Likert-scale questionnaire completed by 29 teachers. Data were analyzed using descriptive statistics (means, standard deviations, and score ranges) across four categories: growth mindset, professional engagement, reflective teaching, and perceived impacts on children's behavior. The results indicate a strong growth mindset ($M = 3.98$) and high professional engagement ($M = 4.03$), although participation in learning communities varied; reflective teaching was also high ($M = 3.94$), and teachers reported increased children's independence and learning enthusiasm ($M = 3.98$). These findings imply the need for context-specific training and strengthened teacher collaboration/learning communities to enhance reflective practice and improve the quality of ECE provision.

Keywords: *Growth Mindset; Early Childhood Teachers; Professional Development; Reflective Teaching; Early Childhood Education*

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1. INTRODUCTION

Growth mindset, a concept introduced by Carol Dweck, refers to the belief that abilities and intelligence can be developed through effort, perseverance, and learning from experience (Bruijns dkk., 2021). In the context of early childhood education (ECE), implementing a growth mindset is essential because it can strengthen teacher quality and instructional effectiveness. Teachers with a growth mindset tend to approach challenges as opportunities to learn and to refine practice, which helps them cope with teaching difficulties and sustain improvement (Feida Noorliala Istiadah & Rahmat Permana, 2023a). Moreover, teachers who embody a growth mindset can serve as positive role models for children by encouraging constructive attitudes toward learning and social interaction (Jensen dkk., 2017).

Growth mindset is also closely related to the professional development of early childhood educators. Continuous learning enables teachers to create supportive and inspiring learning environments for children, and effective professional development is associated with improved child learning outcomes and higher-quality teacher–child interactions (Wallace & Mills, 2019). This issue is particularly relevant in Indonesia, where many early childhood educators face barriers such as limited training opportunities, resource constraints, and insufficient professional support (Laili dkk., 2023).

Currently, ECE teachers in Indonesia face multiple challenges in improving teaching quality, including inadequate training opportunities, limited access to educational resources, and a general lack of emphasis on professional development (Crawford dkk., 2021). Research by Istiadah and Permana (Feida Noorliala Istiadah & Rahmat Permana, 2023b) highlights the need for a more holistic understanding of physical literacy and its implementation in classroom instruction, illustrating how training should build teachers' confidence and pedagogical competence (Pözl-Stefanec, 2021). Given that early childhood education is a critical foundation for children's future development, teacher professional development programs that explicitly promote growth mindset and effective learning practices are needed to support sustainable improvement in ECE settings (Ardiyansyah dkk., 2021).

Although interest in teacher growth mindset has increased, evidence on how it translates into professional learning and enacted practice remains mixed and context-dependent. A recent meta-analysis reports that teachers' growth mindset shows only small associations with outcomes and that evidence varies across constructs and measures (Bardach dkk., 2024). Studies also caution that teachers' self-reported growth mindset may not align with observed growth-mindset-oriented practices, pointing to a belief–practice gap and the need for triangulated measurement (Zhang & He, 2024). A recent review similarly emphasizes that mindsets and growth-oriented practices can be influenced by teacher education and professional development, yet implementation is strongly shaped by contextual conditions (Laine & Tirri, 2023). Empirical work on teacher professional development further suggests that growth mindset and self-efficacy can interact with school leadership factors in shaping teachers' professional attitudes and adoption of teaching strategies (Lin dkk., 2022). However, Indonesian literature remains limited in integrating these insights to examine how growth mindset relates to ECE teachers' professional engagement, reflective practice, and learning-related outcomes, especially in resource-constrained contexts (Dunn-Carver dkk., 2013). This study addresses the gap by providing empirical mapping evidence from ECE teachers in Manggarai Regency, East Nusa Tenggara.

Through this survey, the study aims to explore the relationship between growth mindset and the professional development of early childhood educators in Indonesia. It also focuses on identifying the challenges teachers face in adopting and enacting a growth mindset and seeks actionable solutions to improve teaching quality within ECE settings. By clarifying how growth mindset relates to professional engagement and reflective teaching, this study is expected to provide practical recommendations for teacher education and to support sustainable improvement efforts in early childhood education (Gozali & Khairani, 2021). Ultimately, this study highlights the importance of supporting ECE teachers in Indonesia and underscores the need to integrate growth mindset principles into professional training and development programs. By strengthening teachers' learning orientations and professional learning conditions, teaching quality is expected to improve and to positively support children's social and emotional development (Gozali & Khairani, 2021).

2. METHODS

This study used a cross-sectional descriptive quantitative survey to map ECE teachers' growth mindset tendencies and professional development engagement in a natural school setting. The design was selected to provide a measurable snapshot of teachers' self-reported orientations at one point in time, allowing tendencies across indicators to be summarized numerically (e.g., means and score dispersion) without manipulating any variables.

The study collected numeric questionnaire data (Likert-scale item scores) from 29 ECE teachers in Manggarai Regency, East Nusa Tenggara, Indonesia. Participants were recruited using purposive sampling based on (a) active teaching status in a ECE institution and (b) willingness to participate voluntarily; no identifying information was recorded to maintain anonymity.

Data were gathered using a closed-ended questionnaire consisting of 30 statements rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The instrument was developed from established indicators in the literature (Boylan dkk., 2018) and refined through expert consultation for contextual clarity. The questionnaire operationalized the study variables into four indicator categories: growth mindset (e.g., learning from mistakes, persistence/resilience when facing teaching difficulties, self-efficacy for improving competence), professional engagement (e.g., motivation to learn, participation in professional activities/learning communities, peer collaboration, perceived institutional support), reflective teaching (e.g., reflective and child-centered teaching practices that encourage exploration and problem solving), and perceived impact on children's behavior (e.g., changes in children's independence and learning enthusiasm observed by teachers).

Data collection was conducted in December 2025 through online distribution and assisted field administration to ensure accessibility. Teachers completed the questionnaire individually after receiving standardized instructions; participation was voluntary and anonymous, and coordination with local educational supervisors supported the logistics of distribution and retrieval.

For data analysis, responses were screened for completeness and coded numerically before analysis. Descriptive statistics (mean, standard deviation, minimum, and maximum) were calculated for each item, and category scores were summarized to describe overall tendencies across the four indicator categories; results were then presented in the Results section through a summary table and a figure to facilitate comparison across categories.

3. RESULT AND DISCUSSION

This section reports descriptive findings from the survey of 29 ECE teachers in Manggarai Regency. Teachers responded to 30 Likert-type statements scored from 1 (strongly disagree) to 5 (strongly agree). To provide an overall picture across the four thematic categories measured, Table 1 summarizes the mean, standard deviation, minimum, and maximum scores for each category, and Figure 2 displays the comparative average scores to make differences across categories easier to see. Across all categories, the minimum and maximum values span the full scale (Min = 1; Max = 5), indicating that respondents used the entire response range; in other words, while the overall tendency is high, individual teachers still reported very low scores on some items/categories.

As shown in Table 1 and visualized in Figure 2, the average scores across categories cluster near the upper end of the scale (approximately 3.94–4.03). This pattern suggests that, on average, teachers reported positive orientations toward learning and development, frequent engagement in professional activities, and reflective teaching practices, along with perceived positive impacts on children's behavior. Although the means are close, the distribution statistics in Table 1 provide additional detail. The standard deviations for Growth Mindset (SD = 1.35), Reflective Teaching (SD = 1.35), and Professional Engagement (SD = 1.29) indicate meaningful variability among teachers, implying that some teachers report very strong endorsement of these orientations while others report more moderate or even low endorsement. By contrast, the Perceived Impact on Children's Behavior category has a comparatively lower standard deviation (SD = 1.00), suggesting more consistency in teachers' perceptions regarding children's independence and learning enthusiasm.

Professional Engagement is the highest-scoring category (M = 4.03; SD = 1.29) in Table 1, and it also appears as the tallest bar in Figure 2. This category captures teachers' self-reported involvement in professional learning activities and supportive conditions for professional growth (e.g., motivation to learn, participation in professional activities or learning communities, peer collaboration, and perceived institutional support). The high mean indicates that teachers generally perceive themselves as motivated and engaged in professional development opportunities. However, the presence of the full response range (Min = 1; Max = 5) and the observed dispersion (SD = 1.29) suggest heterogeneity in actual engagement experiences. This aligns with the narrative observation that participation in formal learning communities can vary between teachers, even when overall motivation and perceived support are relatively strong. In practical terms, these statistics indicate that professional engagement is not uniformly experienced: while many teachers report high involvement, a subset may have limited access, lower participation, or fewer opportunities to join structured professional communities.

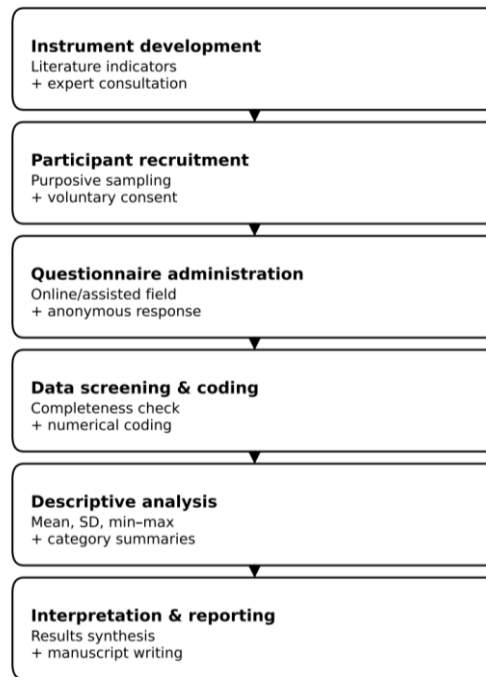


Figure 1. Research Procedure Flow

The Growth Mindset category also shows a high average score ($M = 3.98$; $SD = 1.35$) in Table 1, with a similarly high bar in Figure 2. In this study, growth mindset refers to teachers' endorsement of learning-oriented beliefs about improving competence through effort and experience (e.g., learning from mistakes, persistence when facing teaching difficulties, and confidence in developing teaching competence). The mean close to 4 suggests that teachers generally agree with statements reflecting openness to learning and improvement. At the same time, the relatively large dispersion ($SD = 1.35$) and the full scale range (Min = 1; Max = 5) indicate that not all teachers report the same level of growth-oriented belief. Some teachers may strongly endorse growth-oriented statements, whereas others may be more uncertain or show lower endorsement. These results therefore portray a generally positive mindset climate, but with clear differences that may matter for professional development planning and targeted support.

In the Reflective Teaching category, the mean remains high ($M = 3.94$; $SD = 1.35$) as reported in Table 1, and Figure 2 shows this category as slightly lower than Professional Engagement and Growth Mindset but still near the upper end of the scale. Reflective teaching in this study refers to teachers' reported use of reflective and child-centered practices that encourage exploration and learning processes (e.g., allowing children to try tasks, learn from mistakes, and engage in problem solving). The average score indicates that such practices are frequently reported, suggesting that teachers perceive reflective teaching as part of their instructional approach. However, the relatively large standard deviation ($SD = 1.35$) indicates substantial variability in how consistently these practices are reported across teachers. Together with the full response range, this implies that reflective teaching may be well-established among some teachers but less consistently implemented by others. Compared with the other categories, Reflective Teaching is the lowest mean, which may signal that translating positive orientations (mindset and motivation) into daily reflective practice requires additional conditions such as time for reflection, collegial feedback, pedagogical resources, and structured opportunities for professional learning.

Finally, the Perceived Impact on Children's Behavior category has a high mean score ($M = 3.98$; $SD = 1.00$) in Table 1, and it appears comparable to Growth Mindset in Figure 2. This category captures teachers' perceptions of observable changes in children's behavior related to learning, particularly children's independence and learning enthusiasm. The mean suggests that teachers generally agree that positive behavioral outcomes are being observed in their classrooms. Notably, the smaller standard deviation ($SD = 1.00$) indicates that teachers' perceptions in this category are

somewhat more consistent than in the other three categories, even though the response range still spans from 1 to 5. This pattern can be read as follows: while there are still individual differences, a larger proportion of respondents appears to converge on moderately to strongly positive perceptions of children’s independence and motivation. Because the measure is perceptual (teacher-reported), these results should be interpreted as reported observations rather than direct behavioral measurements; nevertheless, the data indicate that teachers commonly perceive favorable learning-related behaviors among children alongside the pedagogical orientations reported in the other categories.

Taken together, the descriptive findings in Table 1 and Figure 2 point to a generally positive profile across growth mindset, professional engagement, reflective teaching, and perceived impacts on children’s behavior among the participating ECE teachers. The differences among category means are small, suggesting broadly consistent strengths, with Professional Engagement being the most prominent. Importantly, the standard deviations and full-range minimum–maximum scores reported in Table 1 indicate meaningful between-teacher variation in each domain. This variation is substantively relevant because it suggests that professional development initiatives may need to be differentiated: some teachers may benefit from advanced opportunities (e.g., leadership roles in learning communities), while others may need foundational support to increase access, confidence, and consistent reflective practice.

Table 1. Summary of Descriptive Statistics by Thematic Category

Category	Mean	Std Dev	Std	Min	Max
Growth Mindset	3.98	5	1.3	1	5
Professional Engagement	4.03	9	1.2	1	5
Reflective Teaching	3.94	5	1.3	1	5
Impact on Behavior	3.98	0	1.0	1	5

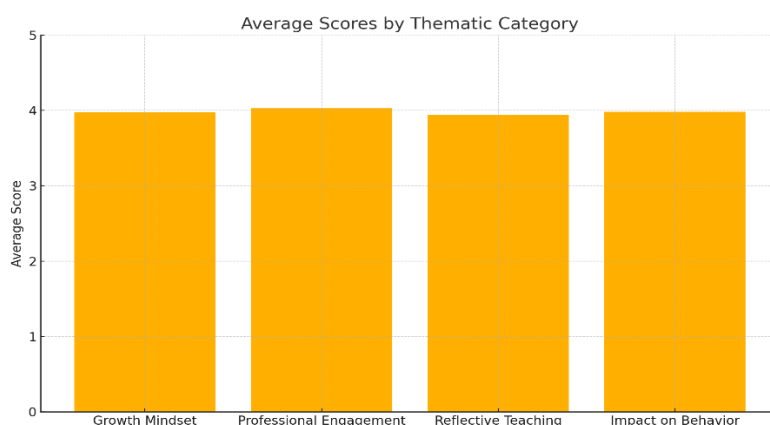


Figure 2. Average Scores by Thematic Category

In early childhood education (ECE), a growth-oriented professional mindset is essential because teachers continually adapt to children’s diverse developmental needs and to contextual constraints such as limited training access. Overall, the descriptive findings in Table 1 and Figure 2 show that ECE teachers in Manggarai report high scores across Growth Mindset (M = 3.98), Professional Engagement (M = 4.03), Reflective Teaching (M = 3.94), and Perceived Impact on Children’s Behavior (M = 3.98). The highest mean in Professional Engagement suggests that many teachers feel motivated to learn and perceive institutional encouragement to develop professionally, even though participation in formal learning communities still varies. This pattern is consistent with

Chen et al. (Lu et al., 2024), who emphasized the role of teacher professional development in shaping learning environments that promote positive learning attitudes in young children.

A plausible contextual lens for the high Professional Engagement score is the collectivistic orientation common in many Indonesian communities, where group harmony and mutual obligation can strengthen commitment to shared roles and responsibilities (Triandis, 2018). In Nusa Tenggara Timur (NTT), cultural practices of mutual assistance (*gotong royong*) have been documented as longstanding social systems that structure communal responsibilities in rural life. In school settings, such collectivistic norms may translate into stronger professional commitment and willingness to contribute to institutional goals, particularly when leaders frame development activities as collective responsibilities rather than individual “extra tasks.” At the same time, collectivism can also mean that professional learning may occur through informal peer support and everyday collegial exchanges, which might not be captured as “formal learning community participation” in a survey-based measure. This interpretation helps explain why overall engagement can be high while reported participation in structured learning communities remains uneven.

Reviewer concerns regarding whether resource limitations can shape resilience are also relevant for interpreting the high scores on Growth Mindset and Reflective Teaching. In rural or resource-constrained contexts, teachers often face limited materials, time, and professional learning opportunities. Such constraints can function as “challenge demands” that encourage adaptive coping and creative problem solving, but they can also become “hindrance demands” that reduce participation in structured development opportunities. Recent syntheses of teacher resilience research show that resilience is strongly shaped by the interaction between demands and resources, including organizational support, peer collaboration, and personal resources such as self-efficacy (Lu dkk., 2024). In this study, the generally high Growth Mindset score may reflect teachers’ adaptive orientation to difficulties, while the variation in learning community participation may reflect unequal access to supporting resources (e.g., time, transport, internet access, or availability of local communities). Leadership support is particularly important in such contexts. Evidence shows that supportive school leadership can strengthen teachers’ resilience by enhancing key job resources such as autonomy, feedback, opportunities for development, and collegial support (Bagdžiūnienė et al., 2022). In a ECE context in Indonesia, transformational leadership has also been associated with improved teacher performance and sustained support for teachers (Alam et al., 2023).

A key issue raised by reviewers is the apparent gap between a high Growth Mindset score and varied (or low) participation in learning communities. Conceptually, growth mindset may strengthen teachers’ perceived capability to improve, but it does not automatically ensure that beliefs translate into observable practices. In social cognitive theory, self-efficacy—beliefs about one’s capability to organize and execute actions—predicts effort, persistence, and engagement in challenging tasks (Bandura, 1977). In that sense, growth mindset can be understood as a belief system that may support self-efficacy, which in turn supports professional learning behaviors. However, education research also shows that teachers’ stated beliefs are not always reflected in classroom or professional practices because contextual constraints and institutional conditions can limit enactment. Therefore, the high growth mindset score in this study could reflect a strong self-perception of learning orientation, while the weaker or uneven learning community participation may reflect barriers beyond individual belief (e.g., limited opportunities, time, competing workload, or weak facilitation).

This gap has two implications for interpretation. First, the current findings should be read as self-reported orientations, not direct evidence that growth mindset is consistently enacted in day-to-day professional behaviors. Second, future work should triangulate survey results with additional data sources (e.g., observation of professional collaboration, documentation of learning community participation, or qualitative interviews) to confirm whether growth mindset beliefs are reflected in sustained professional learning practices. From a professional development perspective, frameworks emphasize that effective teacher learning requires structured opportunities, coherence, collaboration, and sustained support—not only positive beliefs (Wenger, 1998).

The high Reflective Teaching score ($M = 3.94$) suggests that teachers report frequent child-centered practices that allow children to explore, learn from mistakes, and solve problems independently. This finding can be strengthened by linking it to sociocultural learning theory.

Vygotsky's concept of the Zone of Proximal Development (ZPD) posits that learners can achieve higher levels of performance with guidance from a more knowledgeable other (Vygotsky, 1978). Instructional scaffolding, later elaborated as a tutoring process that supports learners to accomplish tasks beyond their independent ability, operationalizes this idea in classroom interactions. Reflective teaching—when teachers deliberately adjust prompts, questions, and supports based on children's responses—can be interpreted as a form of scaffolding in which educators calibrate assistance to help children gradually internalize skills and strategies.

This theoretical linkage supports the argument that reflective teaching is not only an instructional preference but a mechanism for cognitive and socio-emotional development in ECE. Recent evidence syntheses in early childhood and primary settings indicate that teacher critical reflection—particularly when supported by collaborative structures and reflective tools—contributes to higher-quality teaching practice (Philp-Clark & Grieshaber, 2024). In addition, research on student engagement increasingly emphasizes reciprocal, feedback-driven classroom interactions: students' agentic engagement and in-the-moment reasoning can elicit and shape teachers' subsequent prompts, praise, and instructional adjustments (Reeve dkk., 2021; Mameli dkk., 2022; Nagpal dkk., 2025).

Teachers' reports of positive changes in children's independence and enthusiasm ($M = 3.98$) can be interpreted using a basic learning theory lens. In operant conditioning, behaviors that are followed by reinforcing consequences tend to increase in frequency (Skinner, 1953). In ECE classrooms, reinforcement can be delivered through teacher feedback, encouragement, and structured opportunities for repeated practice. Growth mindset-oriented teaching often emphasizes process feedback (effort, strategy use, persistence), which can function as positive reinforcement for adaptive learning behaviors such as trying again, engaging longer, and attempting independent problem solving.

Importantly, such reinforcement is typically embedded in interaction-rich activities. For example, guided play combines structured exploration with adult scaffolding, creating repeated opportunities for children to persist, receive process-focused feedback, and remain engaged while learning (Weisberg et al., 2016). In addition, a meta-analysis in ECEC settings shows that higher-quality teacher-child interactions are associated with better child outcomes (Perlman et al., 2016), and experimental evidence indicates that professional development can improve teacher-child interaction quality (Early et al., 2017).

Taken together, the findings suggest that professional development for ECE teachers in Manggarai should not only offer content on growth mindset and reflective teaching, but also strengthen the conditions that enable teachers to enact these orientations consistently. First, training should be contextual and practice-based, focusing on classroom routines that operationalize growth-oriented feedback and reflective scaffolding. Second, schools and local education stakeholders should reduce barriers to participation in learning communities by providing structural support (e.g., scheduled collaboration time, facilitation, and accessible formats such as cluster-based or blended communities). This recommendation is supported by evidence that the development and sustainability of professional learning communities depend on organizational conditions—such as facilitative leadership, shared goals, and structured time for collaborative inquiry (Schaap & de Bruijn, 2018; Lei et al., 2024). Moreover, large-scale analyses using TALIS 2018 data indicate that teacher collaboration can strengthen teaching efficacy and is associated with more innovative teaching practices, underscoring the value of strengthening collaboration structures as part of teacher professional development (Qin et al., 2025; Koo & Yoo, 2025).

This study has several limitations that should guide interpretation. First, the sample is small ($n = 29$) and purposively selected from one regency, limiting generalizability to other regions. Second, the design is cross-sectional and descriptive; therefore, the findings describe tendencies but cannot establish causal relations among growth mindset, professional engagement, teaching practices, and child outcomes. Third, the measures rely on self-report, which may be influenced by social desirability and may not fully reflect actual classroom practices or documented participation in learning communities. Fourth, children's behavior outcomes are teacher-perceived rather than directly observed or assessed. Finally, the study did not directly measure cultural orientation (e.g., collectivism) or resource constraints, so cultural and contextual explanations remain interpretive.

Future studies should adopt mixed methods by combining surveys with observations, interviews, and participation records to test the belief–practice alignment more directly. Researchers may also include measures of teacher self-efficacy, cultural orientation, and access to professional learning resources to examine how these factors mediate professional engagement and reflective teaching practices.

4. CONCLUSION

ECE teachers in Manggarai, Indonesia show a balanced growth mindset and strong professional commitment. They believe they can improve, remain resilient during teaching challenges, and use reflective, child-centered strategies; teachers also report children becoming more independent and enthusiastic learners when growth-mindset practices are applied. However, professional development can be strengthened through greater institutional support, as participation in formal learning communities is still inconsistent. Context-relevant training on growth mindset and reflective pedagogy, alongside collaborative teacher environments, is needed. These findings inform efforts to improve ECE quality in resource-constrained settings and support children’s social-emotional and cognitive growth.

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6. REFERENCES

- Aisyah, S., Widiasih, Sukmaning Adji, S., Andayani, Prabowo, S., Hadianti, S., & Zakirman. (2022). Analysis of student engagement: ece educators teaching skills strengthening courses in distance education. *JPUD - Jurnal Pendidikan Usia Dini*, 16(2), 261–270. <https://doi.org/10.21009/JPUD.162.06>
- Alam, S., Badeni, B., Kristiawan, M., & Yanti, F. A. (2023). Implementation of transformational leadership on the performance of ECE teachers in the digital era. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 7(6), 6654–6665. <https://doi.org/10.31004/obsesi.v7i6.5417>
- Ardiyansyah, A., Setiawan, E., & Budiya, B. (2021). Moving home learning program (mhlp) as an adaptive learning strategy in emergency remote teaching during the covid-19 pandemic. *JPUD - Jurnal Pendidikan Usia Dini*, 15(1), 1–21. <https://doi.org/10.21009/JPUD.151.01>
- Bagdžiūnienė, D., Kazlauskienė, A., Nasvytienė, D., & Sakadolskis, E. (2022). Linking supportive school leadership and teacher resilience: the mediating role of job resources. *Frontiers in Education*, 7, 999086. <https://doi.org/10.3389/feduc.2022.999086>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *psychological review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bardach, L., Bostwick, K. C. P., Fütterer, T., Kopatz, M., Memarpour Hobbi, D., Klassen, R. M., & Pietschnig, J. (2024). A meta-analysis on teachers’ growth mindset. *educational psychology review*, 36, Article 84. <https://doi.org/10.1007/s10648-024-09925-7>
- Boylan, F., Barblett, L., & Knaus, M. (2018). Early childhood teachers’ perspectives of growth mindset: developing agency in children. *Australasian Journal of Early Childhood*, 43(3), 16–24. <https://doi.org/10.23965/AJEC.43.3.02>
- Bruijns, B. A., Johnson, A. M., Irwin, J. D., Burke, S. M., Driediger, M., Vanderloo, L. M., & Tucker, P. (2021). Training may enhance early childhood educators’ self-efficacy to lead physical activity in childcare. *BMC Public Health*, 21(1), 386. <https://doi.org/10.1186/s12889-021-10400-z>
- Chen, S., Sermeno, R., Hodge, K. N., Geesa, R. L., Song, H. S., Izci, B., Froh, Z., & Murphy, S. (2025). Aligning early childhood science teaching beliefs, practices, and children’s learning outcomes: the impact of a professional development program. *Frontiers in Psychology*, 16, 1580018. <https://doi.org/10.3389/fpsyg.2025.1580018>
- Crawford, A., Varghese, C., Hsu, H.-Y., Zucker, T., Landry, S., Assel, M., Monsegue-Bailey, P., & Bhavsar, V. (2021). A comparative analysis of instructional coaching approaches: face-to-face versus remote coaching in preschool classrooms. *Journal of Educational Psychology*, 113(8), 1609–1627. <https://doi.org/10.1037/edu0000691>
- Dunn-Carver, M., Pope, L., Dana, G., Dorwaldt, A., Flynn, B., Bunn, J., & Harvey-Berino, J. (2013). Evaluation of a teacher-led physical activity curriculum to increase preschooler physical activity. *Open Journal of Preventive Medicine*, 03(01), 141–147. <https://doi.org/10.4236/ojpm.2013.31018>
- Early, D. M., Maxwell, K. L., Ponder, B. D., & Pan, Y. (2017). Improving teacher-child interactions: a randomized controlled trial of making the most of classroom interactions and my teaching partner professional

- development models. *Early Childhood Research Quarterly*, 38, 57–70. <https://doi.org/10.1016/j.ecresq.2016.08.005>
- Feida Noorliala Istiadah & Rahmat Permana. (2023a). Analysis of physical literacy measurement in physical education for early childhood. *Kinestetik: Jurnal Ilmiah Pendidikan Jasmani*, 7(3), 598–607. <https://doi.org/10.33369/jk.v7i3.28340>
- Gozali, I., & Khairani, F. (2021). Syntactic and morphological analysis of portfolio reports of kindergarten teachers in surabaya, indonesia. *E-Structural*, 4(02), 115–128. <https://doi.org/10.33633/es.v4i02.5115>
- Jensen, B., Jensen, P., & Rasmussen, A. W. (2017). Does professional development of preschool teachers improve children's socio-emotional outcomes? *labeco*, 45, 26–39. <https://doi.org/10.1016/j.labeco.2016.11.004>
- Kangas, J., Venninen, T., & Ojala, M. (2016). Distributed leadership as administrative practice in finnish early childhood education and care. *Educational Management Administration & Leadership*, 44(4), 617–631. <https://doi.org/10.1177/1741143214559226>
- Koo, M., & Yoo, J. E. (2025). Teachers' team innovativeness in talis 2018: an empirical and simulation study using glmlasso for multilevel data. *Large-scale Assessments in Education*, 13, Article 19. <https://doi.org/10.1186/s40536-025-00254-x>
- Laili, I. R., Rochsantiningsih, D., & Drajadi, N. A. (2023). Efl in-service teacher training program in indonesia: an analysis of teachers' self-esteem and task perception development. *VELES (Voices of English Language Education Society)*, 7(3), 736–752. <https://doi.org/10.29408/veles.v7i3.24087>
- Laine, S., & Tirri, K. (2023). Literature review on teachers' mindsets, growth-oriented practices and why they matter. *Frontiers in Education*, 8, 1275126. <https://doi.org/10.3389/feduc.2023.1275126>
- Lin, W., Yin, H., & Liu, Z. (2022). The roles of transformational leadership and growth mindset in teacher professional development: the mediation of teacher self-efficacy. *Sustainability*, 14(11), 6489. <https://doi.org/10.3390/su14116489>
- Lu, J., Chen, J., Li, Z., & Li, X. (2024). A systematic review of teacher resilience: a perspective of the job demands and resources model. *Teaching and Teacher Education*, 151, 104742. <https://doi.org/10.1016/j.tate.2024.104742>
- Mameli, C., Grazia, V., Passini, S., & Molinari, L. (2022). Student perceptions of interpersonal justice, engagement, agency and anger: a longitudinal study for reciprocal effects. *European Journal of Psychology of Education*, 37, 765–784. <https://doi.org/10.1007/s10212-021-00559-9>
- Melhuish, E., Howard, S. J., Siraj, I., Neilsen-Hewett, C., Kingston, D., De Rosnay, M., Duursma, E., & Luu, B. (2016). Fostering effective early learning (feel) through a professional development programme for early childhood educators to improve professional practice and child outcomes in the year before formal schooling: study protocol for a cluster randomised controlled trial. *Trials*, 17(1), 602. <https://doi.org/10.1186/s13063-016-1742-1>
- Mohamoud, A. M. (2024). The impact of growth mindset interventions on students' motivation, resilience, and academic achievement. *Multidisciplinary Journal of Horseed International University (MJHIU)*, 2(1), 102–125. <https://doi.org/10.59336/7adj0850>
- Nagpal, M., Lin, T.-J., Kraatz, E., Kim, S., Ha, S. Y., & Glassman, M. (2025). Reciprocal interactions between teachers' instructional moves and students' social reasoning during collaborative small group discussions. *Instructional Science*, 53, 867–899. <https://doi.org/10.1007/s11251-025-09718-7>
- Perlman, M., Falenchuk, O., Fletcher, B., McMullen, E., Beyene, J., & Shah, P. S. (2016). A systematic review and meta-analysis of a measure of staff/child interaction quality (the classroom assessment scoring system) in early childhood education and care settings and child outcomes. *PLOS ONE*, 11(12), e0167660. <https://doi.org/10.1371/journal.pone.0167660>
- Philp-Clark, C., & Grieshaber, S. (2024). Teacher critical reflection: what can be learned from quality research? *The Australian Educational Researcher*, 51(2), 697–717. <https://doi.org/10.1007/s13384-023-00619-7>
- Pözl-Stefanec, E. (2021). Challenges and barriers to austrian early childhood educators' participation in online professional development programmes. *British Journal of Educational Technology*, 52(6), 2192–2208. <https://doi.org/10.1111/bjet.13124>
- Qin, S., Jia, S., & Su, S. (2025). How does teacher collaboration impact teachers' innovation ability? the chain mediation of teaching motivation and teaching efficacy. *Humanities and Social Sciences Communications*, 12, Article 924. <https://doi.org/10.1057/s41599-025-04965-y>
- Reeve, J., Jang, H.-R., Cheon, S. H., Yu, T. H., & Tsai, Y.-C. (2021). When students show some initiative: two experiments on the benefits of greater agentic engagement. *learning and instruction*. Advance online publication. <https://doi.org/10.1016/j.learninstruc.2021.101564>

- Reynolds, A. J., Richardson, B. A., & Lee, S. (2021). Preschool and kindergarten impacts of the midwest expansion of the child-parent centers in the saint paul public schools. *Developmental Psychology*, 57(4), 489–505. <https://doi.org/10.1037/dev0001160>
- Sarwar, M. N. (2023). Development and validation of lesson plans based on growth mindset activities. *Journal of Development and Social Sciences*, 4(III). [https://doi.org/10.47205/jdss.2023\(4-III\)13](https://doi.org/10.47205/jdss.2023(4-III)13)
- Schaap, H., & de Bruijn, E. (2018). Elements affecting the development of professional learning communities in schools. *Learning Environments Research*, 21, 109–134. <https://doi.org/10.1007/s10984-017-9244-y>
- Triandis, H. C. (2018). Individualism and collectivism (1st ed.). routledge. <https://doi.org/10.4324/9780429499845>
- Vujičić, L., Boneta, Ž., & Ivković, Ž. (2014). Social status and professional development of early childhood and preschool teacher profession: sociological and pedagogical theoretical frame / društveni status i profesionalni razvoj profesije odgajatelja rane i predškolske dobi. *Croatian Journal of Education - Hrvatski časopis za odgoj i obrazovanje*, 17. <https://doi.org/10.15516/cje.v17i0.1540>
- Vygotsky, L. S. (1978). *Mind in society: the development of higher psychological processes* (m. cole, v. johnsteiner, s. scribner, & e. souberman, eds.). Harvard University Press.
- Wallace, R., & Mills, B. (2019). A study of the food environment at australian family day care. *Nutrients*, 11(10), 2395. <https://doi.org/10.3390/nu11102395>
- Weisberg, D. S., Hirsh-Pasek, K., Golinkoff, R. M., Kittredge, A. K., & Klahr, D. (2016). Guided play: principles and practices. *Current Directions in Psychological Science*, 25(3), 177–182. <https://doi.org/10.1177/0963721416645512>
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge University Press.
- Wirabrata, D. G. F., & Handayani, D. A. P. (2021). Adversity quotients towards achievement motivation of early childhood teacher education (pg ECE) students in Bali: 2nd international conference on technology and educational science (ictes 2020). <https://doi.org/10.2991/assehr.k.210407.244>
- Zhang, K., & He, W.-J. (2024). Does teachers' self-reported growth mindset ensure growth mindset-oriented feedback practices in the classroom? *frontiers in education*, 9, 1471518. <https://doi.org/10.3389/feduc.2024.1471518>