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The Use Of Scaffolding To Enhance Self-Regulation In Early Childhood Preschoolers in Jogjakarta

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ABSTRACT
Self-regulation skills are crucial for preschool children's academic and social development, yet limited research explores scaffolding in Indonesian early childhood education. This qualitative case study examines how scaffolding strategies enhance self-regulation among preschool children in Yogyakarta, involving 6 teachers, 2 principals, and 24 children aged 4-6 years at two contrasting institutions. Data were collected through semi-structured interviews, classroom observations, and document analysis over two months. Findings reveal that contextually adapted scaffolding most prominently improved emotional and behavioral regulation. Al Islam Kindergarten implemented structured individual scaffolding aligned with developmental standards, while Halimah As-Sa'diyah Playgroup utilized the mulazamah approach integrating Islamic spiritual values, producing notable gains in children's social and spiritual self-regulation. This study confirms that culturally adapted scaffolding particularly through the mulazamah approach effectively enhances emotional and behavioral self-regulation, offering practical models for Indonesian early childhood educators.

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1. Introduction

Self-regulation is a fundamental capability that underpins school readiness for early childhood. This ability encompasses skills in managing emotions, behaviours, and cognitive processes independently (Korucu et al., 2022). Children with proficient self-regulation skills tend to demonstrate higher academic achievement, maintain more positive social relationships, and exhibit better adaptability to the learning environment in schools (Robson et al., 2020). Children with high self-regulation capabilities demonstrate numerous advantages across multiple developmental domains. Research demonstrates that executive function training programs can significantly improve preschoolers' working memory, indicating the malleability of these crucial cognitive skills during early childhood (Blakey & Carroll, 2015). Furthermore, executive functions and language skills in preschool children show unique contributions from verbal working memory and cognitive flexibility, highlighting the interconnected nature of these developmental domains (Gandolfi et al., 2023).

Studies indicate that behavioral self-regulation and executive function both serve as strong predictors of visuomotor skills and early academic achievement, demonstrating the foundational role these abilities play in children's educational success (Cadima et al., 2015). Research by (Mattar et al., 2022) reveals that self-regulation in preschool is significantly associated with pre-academic skills and social-emotional competence, providing empirical evidence for the multifaceted benefits of well-developed regulatory abilities. Early conceptual clarity regarding self-regulation measurement shows that these skills can be effectively assessed and developed through ecologically valid approaches in early childhood settings (McClelland & Cameron, 2012). Additionally, the role of emotion regulation has been established as crucial for children's early academic success, with research demonstrating that children who can effectively manage their emotions show superior performance in educational contexts (Graziano et al., 2007).

The findings of Junge et al., (2020) assert that emotional regulation, as a critical component of self-regulation, correlates positively with the development of empathy and social competence in children. Longitudinal studies by Bierman et al., (2025) indicate that self-regulation interventions during preschool age yield long-term effects on academic performance and social adjustment in subsequent educational stages. Vygotsky, (1978) in his sociocultural theory, emphasises that children develop self-regulation skills through social interactions with more competent adults before internalising these skills. These foundational studies highlight the importance of early intervention in

developing self-regulatory capacities. The theoretical framework establishes self-regulation as a cornerstone for children's holistic development across multiple domains.

Self-regulation in preschool children requires structured and adaptive pedagogical approaches, making scaffolding the most suitable strategy compared to conventional teaching methods. Scaffolding, developed based on Vygotsky's Zone of Proximal Development (ZPD) theory, provides graduated support that is systematically adjusted to individual children's abilities, enabling smooth transitions from external assistance to internal independence (Bodrova & Leong, 2024; Wood et al., 1976). The advantage of scaffolding lies in its flexibility to provide three simultaneous types of support - verbal (instruction and feedback), visual and emotional (visual media), and environmental support that encourages exploration and collaboration - comprehensively accommodating various learning styles and developmental needs (Bodrova & Leong, 2007; Epstein, 2012; Pentimonti & Justice, 2010). Unlike direct instructional approaches that tend to be rigid, scaffolding facilitates the internalisation of self-regulation skills through responsive social mediation processes. The effectiveness of scaffolding in developing self-regulation has been proven through longitudinal research demonstrating significant improvements in goal-setting, emotional understanding, and active self-regulation strategy application (Fumagalli et al., 2020; Hautakangas et al., 2022).

The challenges associated with the development of self-regulation in preschool children reflect the socio-cultural complexities within the context of national education systems. Cai & Meng, (2024) discovered that less structured home environments characterised by high noise levels and disorganisation contribute to increased emotional dysregulation in children aged 3-7 years. Salminen et al., (2021) identified the quality of teacher-child interactions as a significant predictor of self-regulation development outcomes. Cerniglia & Cimino, (2020) further noted that increased use of devices and screen time correlates negatively with emotional regulation abilities and academic achievement. These environmental factors create multifaceted barriers that require targeted interventions to support healthy self-regulation development.

Gary W. Evans, (2013) explained that socio-economic disparities hinder the development of self-regulation mechanisms in children, irrespective of whether they are in urban or rural areas. Low socio-economic status results in specific family economic conditions that exert pressure on the parental system, directly affecting children's ability to develop self-regulation skills. Children in such conditions face dual stressors from their environment, and the limited support for their self-regulation development exacerbates the educational quality gap. The cumulative impact of these stressors creates long-lasting developmental disadvantages that persist throughout childhood. Addressing these disparities requires comprehensive intervention strategies that consider both individual and contextual factors affecting self-regulation development.

Scaffolding, as a pedagogical strategy, demonstrates significant potential in fostering self-regulation in early childhood education settings. Educational experts have found that scaffolding strategies provide substantial benefits for developing self-regulation capabilities in young children through systematic support provision. This theory, derived from Vygotsky's concept of the Zone of Proximal Development (ZPD), offers support tailored to the developmental needs of each child (Xi & Lantolf, 2020). Fumagalli et al., (2020) found that the application of responsive and structured scaffolding in physical activities not only supports children's motor skill development but also facilitates the formation of self-regulation skills. The integrated approach ensures that children receive comprehensive support across multiple developmental domains simultaneously.

Research by Hautakangas et al., (2022) on Child Skills Interventions demonstrated that children became more capable of setting goals, understanding their emotions, and actively applying self-regulation strategies following participation. Bodrova & Leong, (2007) implemented scaffolding methods within the Tools of the Mind curriculum through role-playing activities, self-regulation exercises, and external mediation techniques. They supported the transformation of high-level psychological functions from the interpersonal domain to the intrapersonal, thereby enhancing children's abilities to regulate their own behaviours. Research by Skibbe and colleagues indicated that consistent scaffolding over two years of preschool education resulted in significantly improved literacy skills among children. These findings demonstrate that sustained structured support provides cumulative benefits for cognitive development and self-regulatory capacity building (Skibbe et al., 2011).

The utilisation of scaffolding techniques in early childhood education in Indonesia is garnering attention; however, a critical research gap exists: no study has systematically examined how scaffolding can be culturally adapted to enhance self-regulation across contrasting Indonesian institutional contexts particularly those integrating secular-developmental and Islamic spiritual frameworks. This gap is significant because Indonesian PAUD operates within unique socio-cultural frameworks requiring context-specific pedagogical approaches. Existing studies have addressed related but distinct issues. Research conducted by Nugraheni et al., (2021) illustrates a relationship between self-regulation and school readiness but does not explicitly address applicable scaffolding techniques. Additionally, the study by Amanullah et al., (2022) highlights the implementation of scaffolding techniques to develop cognitive intelligence but places less emphasis on self-regulation aspects. Therefore, conducting further research exploring how scaffolding techniques can be adapted within Indonesian early childhood education contexts remains crucial.

Research by Padilah, (2023) indicates a very strong and positive correlation between scaffolding learning and the social skills of children aged 5-6 years. Effective scaffolding implementation significantly improves children's communication, cooperation, and empathy within the kindergarten educational environment through structured social interactions. Research by (Febrianni et al., 2024) demonstrates that applying scaffolding strategies in physical

education assessments in kindergartens effectively enhances gross motor skills, self-confidence, and independence. This approach emphasises gradual assistance aligned with the child's zone of proximal development, ensuring developmentally appropriate support provision. Despite various studies substantiating the effectiveness of scaffolding strategies in supporting motor, cognitive, and social skill development, research specifically highlighting scaffolding for self-regulation enhancement remains limited.

Scaffolding, introduced by Wood et al., (1976), is inspired by Vygotsky's theory of the Zone of Proximal Development (ZPD) as a foundational concept. Bodrova & Leong, (2024) explain that scaffolding is a gradual support system designed to assist children in learning independently, with support decreasing as independence increases. In early childhood education, scaffolding encompasses three types: verbal (instruction and feedback), visual and emotional (visual media), and environmental support that fosters exploration and collaboration. These multiple support types work synergistically to address diverse learning needs and developmental requirements in young children. The theoretical framework provides a comprehensive foundation for understanding how external support facilitates internal skill development.

Self-regulation refers to the ability to control thoughts, emotions, and behaviours, which begins to develop in infancy and serves as a foundation for development. There are three main components: emotional regulation (management of emotions), cognitive regulation (attention and thought control), and behavioural regulation (adherence to rules) (Diamond, 2013; Kopp, 1982; Thompson, 1994). Children aged 4 to 6 demonstrate progress in self-regulation, although they face challenges such as limitations in working memory and impulsivity issues. These developmental characteristics necessitate targeted interventions that account for age-specific capabilities and constraints in self-regulatory functioning. The integration of scaffolding approaches with self-regulation theory provides a robust framework for educational intervention design (Blair & Raver, 2015; Carlson, 2005; Mischel et al., 1989).

The integration of scaffolding in supporting self-regulation is grounded in Vygotsky's sociocultural theory, which emphasises social interaction. Dignath & Büttner, (2018) demonstrate the positive effects of scaffolding on academic achievement, while Tharp & Gallimore, (2016) identify four stages of scaffolding: assisted performance, self-assisted performance, automation, and de-automation. An adaptive scaffolding approach supports the transition from external regulation to independence through reflective dialogue and the gradual withdrawal of support (Bakhtiar et al., 2018; Perry & Rahim, 2014).

Early Childhood Education in Indonesia reflects socio-cultural diversity with an emphasis on holistic stimulation, in accordance with the National Standards for Early Childhood Education (Rozalena & Kristiawan, 2017). Local cultural values influence teacher-child interactions, creating an atmosphere of collective learning (Hasanah & Sugito, 2020). Fauziddin, (2016) notes that scaffolding in Indonesia is implemented through an integrative thematic approach that incorporates local wisdom, although challenges remain regarding teachers' understanding of effective scaffolding strategies.

Addressing this gap, the present study examines scaffolding implementation to enhance self-regulation in preschool children across two culturally distinct Indonesian institutions. Four focused research questions guide this inquiry: (1) What are teachers' experiences in applying scaffolding for self-regulation development? (2) What specific forms of scaffolding are implemented in each institutional context? (3) How do children respond to different scaffolding approaches? and (4) What factors support or hinder effective scaffolding implementation? The novelty of this study lies in its comparative dual-site design capturing both secular-structured and Islamic spiritual scaffolding approaches offering the first empirical account of culturally responsive scaffolding for self-regulation within the Indonesian PAUD system. Findings contribute an empirical basis for context-sensitive teacher training and actionable recommendations for early childhood educators across diverse Indonesian settings.

2. Method

This study employs a qualitative approach with a case study design to explore the use of scaffolding in enhancing self-regulation among early childhood children in Yogyakarta. This design was selected due to its appropriateness in addressing the questions of "how" and "why" related to scaffolding practices and their impact on children's self-regulation (Yin, 2018). The research was conducted in 2 early childhood education institutions, specifically at KB Halimah As-Sa'diyah in Bantul Regency and TK Al-Islam in Sleman. Data collection was carried out using purposive sampling focused on the development of self-regulation. The participants in the study comprised 6 early childhood educators (each with a minimum of 2 years of experience, with 3 teachers from each institution), 2 school heads, and each institution observed 12 children aged 4 to 6 years (who had received scaffolding intervention for at least 1 semester).

Participants across both institutions are presented systematically in Table 2 (see Results). Data collection employed triangulation across four techniques. Semi-structured interviews were conducted with all 6 teachers (3 per institution; experience range 3–6 years) to explore their understanding, implementation strategies, and experiences with scaffolding in developing children's self-regulation. Interviews were also conducted with the 2 school principals to gather institutional perspectives on scaffolding policies, resource allocation, and administrative support for self-regulation programmes. Classroom observations were guided by a structured instrument comprising four domains:

(a) cognitive regulation behaviours (attention-focusing, instruction-following, planning), (b) emotional regulation behaviours (emotion recognition, self-soothing, frustration tolerance), (c) behavioural regulation (impulse control, turn-taking, rule adherence), and (d) social-independence indicators (cooperative initiation, task completion, peer interaction quality). Each session lasted 60–90 minutes with field notes recorded immediately post-observation. Document analysis covered institutional planning documents, daily lesson plans, and children's developmental assessment records. The research was conducted over two months encompassing preparation, data collection, analysis, and reporting stages. Data analysis followed Braun & Clarke's (2006) six-phase thematic analysis: familiarisation, initial coding, theme search, theme review, theme definition, and report production. To illustrate the coding process: the code "graduated verbal prompting" emerged from repeated observations of teachers reducing explicit instruction as children demonstrated competence; this contributed to the broader theme of "adaptive scaffolding withdrawal. Regarding researcher reflexivity, the first author is an early childhood practitioner-researcher with direct experience in Islamic ECE pedagogical practice. To manage potential interpretive bias, observation and interview protocols were applied identically across both research sites, and the researcher conducted peer debriefing to test the objectivity of data interpretation. Data analysis was conducted using a thematic approach, involving stages of familiarisation, coding, organisation into themes, review, and integration into the research narrative (Braun & Clarke, 2006). Data validity was maintained through source and method triangulation, alongside member-checking with participants to verify the accuracy of interpretations.

3. Result

This research was conducted in two early childhood education institutions with differing demographic characteristics. Al Islam Kindergarten is a formal private early childhood education institution serving 54 children aged between 4 to 6 years, located in an urban area of Sleman Regency. Meanwhile, Halimah As-Sa'diyah Playgroup is a non-formal private early childhood education institution catering to 28 children aged 3 to 6 years, situated in a rural location in Bantul. The two institutions exhibit teacher-student ratios of 1:7 at Al Islam Kindergarten and 1:5 at Halimah As-Sa'diyah Playgroup, thereby providing distinct contexts for the implementation of individual scaffolding.

Al Islam Kindergarten upholds the vision of "Realising Excellent Individuals who are Faithful, Intelligent, Skilled, Independent, and Cheerful," with one of its missions relevant to self-regulation being "the fostering of student independence, intellectual development, social-emotional development, skills, and local culture." Conversely, Halimah As-Sa'diyah Playgroup envisions "Nurturing Qur'anic Character Individuals," with a self-regulation mission focused on "developing children's independence through life skills activities and training and developing six aspects of development." These differing orientations provide varied contexts for analysing the implementation of scaffolding in the development of children's self-regulation.

3.1 The results of the interviews with the Headmaster and the Teachers in TK Al Islam and KB Halimah as-Sa'diyah

The results of qualitative research employing a case study approach on the experiences of the principals of Al Islam Kindergarten and Halimah As-Sa'diyah Playgroup reveal the essence of the implementation of scaffolding to enhance self-regulation in early childhood. Representative interview excerpts are presented to substantiate the thematic findings. The principal of Al Islam Kindergarten stated: "*We design each scaffolding step based on what the child can already do we watch first, then we step in just enough to move them forward*" (Principal TK Al Islam, Interview, April 2025). At Halimah As-Sa'diyah, the principal articulated: "*Scaffolding for us is not separate from akhlaq when a child learns patience in recitation, they are also learning to regulate themselves*" (Principal KB Halimah, Interview, April 2025). Through in-depth interviews, two distinct leadership experience patterns emerged regarding the understanding and implementation of scaffolding as a pedagogical strategy. The experience of the principal of Al Islam Kindergarten demonstrates an understanding of scaffolding as a structured support system oriented towards achieving developmental standards. In their subjective experience, the principal interprets the individual approach with environmental support as a manifestation of professional responsibility in facilitating the child's zone of proximal development. Investment in the Merdeka PAUD curriculum facilities and structured learning materials is understood as a form of institutional commitment to measurable learning quality. The experience of managing individual children's needs to enhance developmental outcomes is viewed as a professional challenge that requires a systematic and continuous approach.

In contrast to this experience, the principal of Halimah As-Sa'diyah Playgroup experiences and interprets scaffolding within a mulazamah system that integrates spiritual dimensions into the learning process. Mulazamah is an approach that emphasizes intensive mentoring and direct exemplification from teachers to students through closeness and togetherness in the teaching-learning process (Sahidin, 2021). Their subjective experience indicates that scaffolding is not merely a cognitive strategy but a medium for transmitting values of faith and etiquette that are fundamental to character formation in children. The utilisation of open spaces with carpets and low tables is understood as a manifestation of a learning philosophy that emphasises freedom of movement and social interaction as key elements of self-regulation. The challenge of integrating values of faith and etiquette is interpreted as a holistic educational mission, rather than merely achieving academic targets as measured at Halimah As-Sa'diyah.

The intensity of ongoing coaching through weekly programmes and regular studies reflects a leadership experience that emphasises the formation of a learning community. The principal of Halimah As-Sa'diyah experiences the scaffolding process as a collective responsibility requiring synergy between competency development and the spiritual strengthening of educators.

Data triangulation through interviews with six teachers (three from each institution) reinforces the phenomenological findings regarding the implementation of scaffolding. In Al Islam Kindergarten, teachers with 4-10 years of experience demonstrate an understanding of scaffolding focused on developing emotional, cognitive, and independence regulation through gradual stimulation, critical thinking, and structured habituation. The results of the implementation lead to the achievement of emotional regulation skills, learning readiness, and patterns of independent habituation.

In contrast to this experience, teachers at Halimah As-Sa'diyah Playgroup with 3-6 years of experience understand scaffolding within an integrative spiritual-academic context. Implementation through the mulazamah method, a centre-based system with loose parts, and peer teaching results in the development of patience in Quranic recitation, improvement in literacy-numeracy, as well as self-control and social regulation skills.

Evaluation of the effectiveness of scaffolding reveals a significant differentiation in approaches between the two institutions. Al Islam Kindergarten implements an individual, gradual, and programmed approach that results in strengths in fostering independence and optimising teacher experiences. Field observations confirm achievements in self-control, independence, and social interaction capabilities among children. The effectiveness of the learning environment is evidenced in supporting the implementation of scaffolding through the integration of the Merdeka PAUD curriculum with Islamic values and culture.

Conversely, Halimah As-Sa'diyah Playgroup demonstrates effectiveness through the mulazamah approach that integrates etiquette and spiritual values. The strength of the implementation lies in reinforcing the understanding of faith concepts and spiritual values that foster self-control, care, and compassion in children. The learning environment proves effective in supporting the enhancement of self-regulation through the integration of faith values in learning and habituation.

Analysis of the narratives from the principals, teachers, and observational data reveals the relationship of experiences in understanding scaffolding as a transformative process with differing orientations. The effectiveness of scaffolding is not solely determined by implementation techniques but also by the philosophical consistency between leadership and learning practices, the depth of teachers' understanding of children's developmental needs, and the quality of implementation tailored to the unique characteristics of each institution. These findings indicate that scaffolding is effective when there is synergy between pedagogical approaches, institutional values, and a holistic supportive learning environment.

3.2 The Results of Scaffolding Observations at Al Islam Kindergarten in Enhancing Self-Regulation

Observations were conducted in Class A of Al Islam Kindergarten, consisting of 12 children aged 4-5 years, guided by two teachers. The focus of the observation was on the application of scaffolding to enhance children's cognitive, emotional, behavioural, and independence regulation. The findings from the scaffolding observations based on cognitive regulation indicate that the children responded positively to cognitive scaffolding support. For instance, BA (4 years) initially appeared confused when posed with open-ended questions, but with gradual guidance, was able to complete tasks independently. SH exhibited a significant increase in concentration through the use of engaging visual and audio stimuli. IN (5 years) appeared enthusiastic during the colour mixing experiment and was able to think critically to seek answers. Meanwhile, DE (4 years) utilised various learning methods and demonstrated improved memory capabilities.

The findings from the observations of emotional regulation showed encouraging results. AN (5 years), who initially appeared sad, began to open up and share problems with the teacher and learned breathing techniques to calm themselves. EL (4 years) was able to recognise their own feelings and used methods to self-soothe without assistance. SH (5 years) modelled calm behaviour exhibited by the teacher and developed strategies to manage their own emotions.The results of the observations on behavioural regulation/habituation indicated positive development among the children in managing their behaviours. BI (4 years) learned to be patient in taking turns during play with the aid of a timer and music, thus no longer acting hastily. SH (5 years) was able to follow the morning routine with the help of a pictorial poster and is now capable of doing it independently. LU (5 years) adapted well to a structured learning environment and demonstrated developing self-regulation skills.

Social regulation and independence in IN (4 years) showed progress in social interactions through role-playing as a doctor, which helped them understand others' feelings and reduce conflicts. AN (4 years) was given the opportunity to make choices in activities, resulting in a high level of independence. Most children exhibited confusion or difficulty at the outset, but with appropriate scaffolding support, they were able to develop and achieve independence across various aspects. Both teachers were observed providing support tailored to the individual needs of each child, ranging from direct assistance to gradually reducing help to foster independence.

All 12 children demonstrated positive progress in the aspects of regulation that were the focus, indicating that the scaffolding approach is effectively applied in this class. The implementation of scaffolding in Class A of Al Islam Kindergarten has shown success in enhancing various aspects of children's regulation. The individual approach

tailored to the needs and characteristics of each child has proven effective in assisting them in achieving independence in cognitive, emotional, behavioural, and social regulation.

3.3 The Results of Scaffolding Observations at Halimah As-Sa'diyah Playgroup

The observations were conducted at Halimah As-Sa'diyah Playgroup with 12 children aged 4-6 years, guided by two teachers. The focus of the observation was on the application of scaffolding that integrates Islamic spiritual values to enhance children's cognitive, emotional, behavioural, and independence regulation.

Findings from the observations of spiritual-emotional regulation indicate that AR (5 years) exhibited high enthusiasm when hearing stories containing spiritual values and creating a sun collage. This child was able to express creativity while understanding spiritual meanings and can now create simple artwork independently. HA (4 years) appeared focused while memorising short surahs with movements and used positive phrases to self-soothe when upset. MA (4 years) greatly enjoyed stories about the Prophet and companions, which helped them learn to manage emotions through good examples.

Behavioural regulation with a spiritual approach was observed when UB (6 years), who initially often caused disruptions, began to learn self-control and reduce disruptive behaviours after being taught istighfar and reminded by peers. AT (5 years) used istighfar to calm themselves and showed improvement in cooperating with friends. KA (4 years) diligently read daily prayers and used them to self-soothe, demonstrating significant development in this ability.

Findings from observations on cognitive regulation reveal that NA (5 years) learned to solve problems with friends and sought help when facing difficulties in friendships. FA (4 years) used body movements to aid memorisation, which helped increase their focus and thinking ability. AI (6 years) enjoyed singing Arabic songs that assisted in remembering new vocabulary, resulting in rapid development in their Arabic language skills. In terms of social regulation and independence, AC (6 years) displayed high levels of care by helping a friend get a drink and providing mutual support, enhancing their empathy and social interactions. ID (6 years) was able to organise themselves in groups while cleaning the classroom and took the initiative to help friends without being asked. AL (5 years) developed character through playing hide and seek, which taught honesty and sportsmanship, thus reducing conflicts with peers. A unique pattern observed was the integration of spirituality in every activity, where all scaffolding activities were infused with Islamic values, such as the use of istighfar, prayers, stories of the Prophet, and memorisation of surahs, becoming a natural part of the learning process. Children were taught to help and remind each other, creating a collaborative and empathetic learning environment. Scaffolding not only focused on academic aspects but also on character development, spirituality, and social skills simultaneously. Children exhibited joy during activities involving Islamic values, such as listening to stories of the Prophet or memorising surahs with movements.

The ability to self-soothe was evident, as most children were able to use prayers and istighfar as natural means to calm themselves without teacher assistance. The children showed improvements in understanding their peers' feelings and a willingness to help each other. The role of teachers in implementing scaffolding was crucial as they served as role models in integrating Islamic values into every learning activity. The collaborative guidance of teachers encouraged children to learn from peers and support each other in the learning process. The character model of teachers exemplified expected behaviours by demonstrating patience, empathy, and Islamic values in daily interactions. The implementation of scaffolding in Halimah As-Sa'diyah Playgroup has shown success in integrating academic development with Islamic spiritual values. The applied mulazamah approach has proven effective in helping children develop self-regulation that is not only cognitive and emotional but also spiritual. All 12 children demonstrated positive progress across various regulatory aspects with a strong foundation of Islamic values.

Table 1 : Types of Regulation, Use of Scaffolding and Children's Responses

Type of Self-Regulation	Use of Scaffolding at Al Islam Kindergarten		Use of Scaffolding at Halimah As-Sa'diyah Playgroup	
	Teacher Scaffolding	**Children's Responses**	**Teacher Scaffolding**	**Children's Responses**
Cognitive Regulation: • Ability to focus attention • Following instructions • Demonstrating simple planning • Selecting strategies to complete tasks	Hierarchical questioning, focus framing, visual-auditory cues	The majority of children achieve expected abilities, attention span increases	Direct demonstrations, movement-based learning, traditional memorisation	Responsive to visual-motor support, good adaptation within groups
Emotional Regulation: • Recognising emotions • Expressing emotions • Self-soothing during frustration/anger • Persevering in the face of challenges	Breathing techniques, problem-solving dialogues	Emotional vocabulary increases, frequency of tantrums decreases,	Seeking forgiveness, stories of prophetic history, peer support systems	Increased spiritual self-talk, long-term stability in self-soothing abilities

		independence in self-soothing		
Behavioural Regulation: • Waiting for turns • Restraining impulses • Adhering to classroom rules • Transitioning smoothly between activities	Visual waiting times, physical cues, auditory signals	Impulsive behaviours decrease, independent transitions increase, self-control improves	Seeking forgiveness, peer reminders, character-based learning	Increased group self-control, development of flexible thinking, reduced conflicts
Independence: • Initiating independent activities • Problem-solving • Completing tasks • Organising necessary materials/tools	Opportunities for choice, assignment of responsibilities, visual checklists	The majority exhibit independence in self-care, high personal autonomy, initiative in organising	Collective responsibility, peer guidance, family-style interactions	| Initiative in assisting others, strong social independence, effective cooperation

3.4 Comparative Findings Across Institutions

Table 2 presents a comparative synthesis of key findings between TK Al Islam Kindergarten and KB Halimah As-Sa'diyah Playgroup across four dimensions of self-regulation.

Table 2. Comparative Findings: TK Al Islam Kindergarten vs. KB Halimah As-Sa'diyah Playgroup

Dimension	**TK Al Islam Kindergarten (Urban, Secular-Developmental)**	**KB Halimah As-Sa'diyah Playgroup (Rural, Islamic Spiritual)**
Scaffolding Approach	Structured individual scaffolding; gradual support withdrawal aligned with developmental standards (Permendikbud No. 137)	Mulazamah approach: spiritual mentoring integrated with daily activities; peer and teacher modelling of Islamic values
Cognitive Regulation	Open-ended questioning, visual/audio stimuli, hands-on experiments (colour mixing); children progress to independent problem-solving	Arabic song memorisation with body movements, Prophet story discussions; Islamic vocabulary integrated into cognitive tasks
Emotional Regulation	Breathing techniques, emotion recognition, teacher modelling of calm behaviour; individual self-soothing strategies developed	Istighfar practice, spiritual self-talk, Prophet exemplar stories; emotional regulation embedded in religious practice
Behavioural Regulation	Timer-assisted turn-taking, pictorial routine posters, structured environment; children develop independent rule adherence	Peer reminder system for istighfar, collective prayer routines, group habituation; spiritual accountability promotes behavioural control
Social Regulation & Independence	High personal autonomy; initiative in organising tasks; structured individual goal-setting supports independence	Collective responsibility, peer guidance, family-style interactions; initiative in assisting others and strong social independence
Key Supporting Factors	Teacher competence in ZPD identification; institutional alignment with national developmental standards; individual assessment tools	Teacher's Islamic pedagogical knowledge; community and parental support for spiritual values; institutional vision alignment
Significant Improvement Area	Cognitive and behavioural regulation (most prominent); emotional regulation through structured individual support	Emotional and social regulation (most prominent); spiritual self-regulation as distinctive outcome
Limitation of Approach	Less emphasis on collective/spiritual dimensions of regulation	Less systematic documentation of individual developmental progression against standardised benchmarks

3.5 Factors Influencing the Success of Scaffolding Implementation

3.5.1 Factors from Educators/Teachers

Research findings from both institutions reveal considerable variation in the professional backgrounds and competencies of teachers implementing scaffolding. Studies consistently affirm that self-regulation is a critical

dimension of children's health, well-being, and developmental success from the earliest years of life onward (Suarez-Restrepo & van Rooijen, 2021). In terms of academic qualifications, Al Islam Kindergarten employs seven teachers, four of whom hold a Bachelor's degree (S1) in Early Childhood Education (PG PAUD), while the remaining three hold S1 degrees in non-PAUD fields. The latter, however, bring considerable accumulated practical experience in teaching young children, which serves as a valuable complement to formal academic preparation. The combination of PAUD-specific academic competence and rich field experience strengthens the collective capacity of Al Islam Kindergarten's teachers to design and deliver scaffolding that is responsive to individual children's developmental needs. This is reflected in their mature pedagogical competence, characterised by keen observational skills, sensitivity to individual differences, and flexibility in adjusting support strategies. A well-grounded understanding of the Zone of Proximal Development (ZPD) enables these teachers to systematically withdraw support in a planned and graduated manner as children demonstrate increasing readiness, while simultaneously conducting ongoing developmental assessment. Notably, the daily schedule at Al Islam Kindergarten begins with a 1.5-hour Iqro' (Qur'anic reading) class, followed by 3 hours of core instructional activities (KBM), resulting in a total learning duration of 4.5 hours per day. This structure reflects the institution's commitment to integrating religious character formation with developmentally grounded academic stimulation.

KB Halimah As-Sa'diyah has six teachers with a more varied qualification profile. Only one teacher holds an S1 degree in Early Childhood Education, while two others hold S1 degrees in non-education fields and have not yet completed the Basic PAUD Training (Diklat Dasar PAUD). The remaining three teachers have completed the one-month Diklat Dasar PAUD as a foundational qualification in early childhood education practice. The distinctive strength of KB Halimah As-Sa'diyah's educators lies in their strong Islamic competence and Qur'anic recitation abilities, cultivated through mandatory regular training sessions on Islamic studies and the Qur'an conducted by the institution. The daily schedule at KB Halimah As-Sa'diyah allocates 1.5 hours to Qur'anic learning and Tahfidz, followed by 1.5 hours of core KBM that is fully integrated with values of faith (iman) and good conduct (adab), totalling 3 hours of daily learning. This Islamic competence forms the foundational basis for the application of the mulazamah approach, which serves as the hallmark of scaffolding practice at this institution.

These differing competency profiles naturally give rise to variation in scaffolding practices across the two institutions. At Al Islam Kindergarten, scaffolding tends to be more pedagogically structured and developmentally sequenced, whereas at KB Halimah As-Sa'diyah, scaffolding emerges organically from spiritual values and Islamic role modelling. Both patterns exert distinct yet equally meaningful influences on children's self-regulation development: self-regulation at Al Islam Kindergarten is most prominent in the cognitive and behavioural dimensions, while at KB Halimah As-Sa'diyah it is strongest in the emotional and spiritual dimensions. Self-regulation and mental functioning are fundamental to children's academic and socio-emotional well-being; accordingly, early childhood educators require sustained professional support to optimally facilitate the development of self-regulation (Slot et al., 2024). Teacher competence is a determining factor in the success of scaffolding implementation, with a strong correlation established between the level of teacher training and children's learning outcomes (Dominguez & Svihla, 2023).

3.5.2 Factors of Child Responsiveness and Environmental Support

Children's responsiveness to scaffolding is shaped by a complex interplay of factors, including individual temperament, prior learning experiences, family support, and cultural background. Within the context of early childhood education, self-regulation is recognised as an essential developmental element (Immonen-Orpana et al., 2021). At Al Islam Kindergarten, children demonstrate strong responsiveness to scaffolding, as evidenced by their enthusiasm for participation, openness to teacher guidance, and resilience when encountering challenges. This responsiveness is supported by positive teacher-child relationships, a well-structured learning environment, and meaningful family involvement. Parental engagement is facilitated through a parenting programme conducted once every two months, supplemented by individualised, face-to-face developmental consultations held on an incidental basis. This structured yet flexible model of parental engagement sustains continuity between school-based scaffolding and home-based caregiving, thereby reinforcing the development of children's self-regulation beyond the classroom.

At KB Halimah As-Sa'diyah, children exhibit positive responsiveness with distinctive characteristics, including strong spiritual connectedness, peer influence, and community values that function as sources of intrinsic motivation. Family involvement at this institution is notably intensive. A mandatory monthly parenting programme is conducted for both fathers and mothers, with content centred on Islamic parenting principles. In addition, monthly developmental monitoring sessions are held at the classroom level, accompanied by ongoing developmental consultation services accessible to parents throughout the academic year. This high level of parental engagement creates a powerful synergy between the Islamic values cultivated at school and caregiving practices at home, ensuring that mulazamah-based scaffolding is consistently reinforced within the family environment. The relationship between structured engagement and the development of self-regulation is further strengthened within this context (Sauceda et al., 2022). Environmental support across both institutions is further manifested through strategic classroom arrangement, provision of developmentally appropriate materials, and the implementation of structured daily routines. While both institutions demonstrate commitment to creating conducive learning environments, they differ in their underlying orientation: Al Islam Kindergarten prioritises an environment that fosters individual autonomy

and developmental independence, whereas KB Halimah As-Sa'diyah cultivates a communal environment deeply imbued with Islamic values. Collectively, these environmental elements establish optimal conditions for the effectiveness of scaffolding in supporting children's self-regulation development.

3.5.3 Hindering Factors

This study identified a number of significant barriers affecting the quality and consistency of scaffolding implementation and children's self-regulation development across both institutions. Although each institution demonstrates distinct strengths, structural and contextual challenges require serious attention to sustain and optimise scaffolding effectiveness over time. Resilience one dimension of which is self-regulation develops through complex interactions between children and responsive adults in their environment(Connor et al., 2024). At Al Islam Kindergarten, the daily learning structure comprises 1.5 hours of Iqro' class followed by 3 hours of core instructional activities, totalling 4.5 hours of learning per day. While this reflects the institution's strong commitment to integrating religious and developmental learning, the extended daily duration presents a challenge for teachers in sustaining consistent scaffolding quality throughout the day, as the attentional capacity and stamina of young children are inherently limited. A further structural constraint is the teacher-to-student ratio of 7 teachers to 54 students, yielding an average of approximately one teacher per nine to ten children. In a context where effective scaffolding demands personalised, ZPD-responsive interaction, this ratio limits the depth and frequency of individual scaffolding that can realistically be provided. The wide variation in children's developmental readiness within a single classroom arising from differences in maturational pace, family background, and prior learning experiences, further demands that teachers simultaneously differentiate scaffolding strategies across multiple developmental levels, a challenge requiring high professional competence and careful classroom management. The limited diversity of instructional media and learning materials also constrains the range of scaffolding strategies that can be applied creatively and contextually.

At KB Halimah As-Sa'diyah, with a more favourable ratio of 5 teachers to 28 students (approximately 1 teacher per 5 children) and a total of 3 hours of daily learning, the structural conditions are in principle more conducive to personalised scaffolding. The primary barrier at this institution, however, lies in teacher qualification and competence. Of the six teachers, only one holds an S1 degree in Early Childhood Education, while two others hold S1 degrees in non-education fields and have not yet completed the Basic ECE Training (Diklat Dasar PAUD). Without adequate pedagogical grounding, scaffolding risks being applied intuitively rather than systematically, and may not be sufficiently responsive to individual children's ZPD. A related challenge is the absence of standardised individual developmental assessment instruments, which limits teachers' capacity to systematically monitor each child's self-regulation progress and make data-informed decisions about scaffolding provision. Additionally, limited classroom facilities and learning materials constrain the variety and richness of scaffolding interactions that teachers can offer. Taken together, the two institutions face contrasting yet complementary challenges.

Al Islam Kindergarten confronts issues of capacity management, optimising scaffolding quality within the constraints of an extended learning day and a less-than-ideal teacher-student ratio. KB Halimah As-Sa'diyah, by contrast, faces challenges of human resource development, building sufficient technical ECE competence among its teachers so that the advantage of a favourable teacher-student ratio can be fully realised. As Connor et al. (2024) affirm, self-regulation develops through consistent interactions with responsive and competent adults; addressing these institutional barriers is therefore a critical prerequisite for achieving optimal and sustainable scaffolding outcomes in both settings.

3.5.4 Institutional Value Factors

At Al Islam Kindergarten, which has the vision of "Realising Outstanding Individuals who are Faithful, Intelligent, Skilled, Independent, and Cheerful", there is an integration of values that appreciate individual differences through a tailored scaffolding approach. Meanwhile, Halimah As-Sa'diyah Kindergarten, with the vision of "Nurturing Qur'anic Character", demonstrates a strong integration of Islamic values through prayer-based self-soothing strategies, an emphasis on morals in social interactions, and spiritual motivation for self-improvement. The poor access to quality education for preschoolers in Indonesia is a significant issue, thus the initial step that needs to be taken is to identify the extent to which inclusive educational practices are implemented in these institutions (Syafirah et al., 2023).

4. Discussion

The findings of this study provide compelling evidence for the effectiveness of scaffolding in enhancing self-regulation among preschool children in Indonesian early childhood education settings. The results align with (Vygotsky, 1978) sociocultural theory, which emphasizes that children develop self-regulation skills through social interactions with more competent adults before internalizing these skills. Both Al Islam Kindergarten and Halimah As-Sa'diyah Playgroup demonstrated successful implementation of scaffolding strategies, albeit through different pedagogical approaches that reflect their institutional contexts and values.

The observed improvements in cognitive, emotional, behavioral, and social regulation across both institutions corroborate the findings of (Hautakangas et al., 2022) who demonstrated that scaffolding interventions enable children to become more capable of setting goals, understanding their emotions, and actively applying self-regulation strategies. The structured support provided through graduated assistance, as conceptualized by Wood et

al., (1976) and further developed by (Bodrova & Leong, 2024), proved effective in facilitating the transition from external regulation to independence.

Particularly noteworthy is the evidence supporting Diamond, (2013)) three-component model of self-regulation. Children at both institutions showed progress in emotional regulation (management of emotions), cognitive regulation (attention and thought control), and behavioral regulation (adherence to rules). The case of AN (5 years) at Al Islam Kindergarten, who learned breathing techniques and gradually developed independent emotional self-soothing abilities, exemplifies the successful internalization process described in Vygotsky's Zone of Proximal Development theory. The contrasting approaches between the two institutions highlight the importance of contextual adaptation in scaffolding implementation. Al Islam Kindergarten's structured, individual-focused approach aligns with Tharp & Gallimore, (2016) four stages of scaffolding: assisted performance, self-assisted performance, automation, and de-automation. The systematic withdrawal of support observed in cases like SH (5 years), who progressed from requiring pictorial posters for morning routines to independent execution, demonstrates the effectiveness of adaptive scaffolding as described by Bakhtiar et al., (2018).

Conversely, Halimah As-Sa'diyah Playgroup's mulazamah approach, integrating Islamic spiritual values, represents a culturally responsive adaptation of scaffolding principles. This approach aligns with (Fauziddin,'s (2016) observation that scaffolding in Indonesia is implemented through integrative thematic approaches that incorporate local wisdom. The use of istighfar and prophetic stories as self-regulation tools demonstrates how cultural and spiritual elements can be effectively integrated into scaffolding frameworks without compromising their pedagogical effectiveness. The study confirms (Bodrova & Leong, (2007) identification of three types of scaffolding support: verbal (instruction and feedback), visual and emotional (visual media), and environmental support. Both institutions successfully implemented these multiple support systems, though with different emphases. Al Islam Kindergarten's use of visual-auditory cues, timers, and structured environments aligns with research by (Blakey & Carroll, 2015) on executive function training programs that improve working memory through varied sensory approaches.

The environmental modifications observed in both settings support Epstein's, (2014) emphasis on creating exploration-friendly environments. The strategic space arrangements and material provisions created optimal conditions for scaffolding effectiveness, addressing the environmental factors identified by Z Cai & Meng, (2024) as crucial for emotional regulation development. The varying levels of teacher competence observed between institutions underscore the importance of professional development in scaffolding implementation. The mature skill set demonstrated by teachers at Al Islam Kindergarten, characterized by keen observation and flexibility in support strategies, aligns with (Salminen et al., 2021) identification of teacher-child interaction quality as a significant predictor of self-regulation development outcomes. This finding emphasizes the need for targeted teacher training programs that focus on scaffolding techniques and child development understanding.

The positive development observed among teachers at Halimah As-Sa'diyah Playgroup, particularly their strength in understanding spiritual aspects of child development, reflects the importance of culturally relevant professional development. This supports (Hasanah & Sugito, 2020) observation that local cultural values influence teacher-child interactions and create atmospheres of collective learning. The observed improvements in self-regulation skills have significant implications for children's future academic and social success. The findings support Bierman et al., (2025) longitudinal research indicating that self-regulation interventions during preschool age yield long-term effects on academic performance and social adjustment. The development of emotional vocabulary, decreased tantrum frequency, and improved social cooperation observed in both institutions suggest that these children are developing foundational skills that will benefit them throughout their educational journey.

The integration of spiritual values at Halimah As-Sa'diyah Playgroup, resulting in increased spiritual self-talk and long-term stability in self-soothing abilities, adds a unique dimension to self-regulation development. This approach addresses Junge et al., (2020)) findings on the positive correlation between emotional regulation and the development of empathy and social competence, while incorporating cultural and spiritual elements that may enhance the sustainability of these skills. The study's findings provide insights into addressing the socio-cultural challenges identified in the literature. Gary W. Evans, (2013) concerns about socio-economic disparities hindering self-regulation development are partially addressed through the inclusive approaches observed in both institutions. The success of scaffolding in diverse socio-economic contexts (urban Al Islam Kindergarten and rural Halimah As-Sa'diyah Playgroup) suggests that well-implemented scaffolding strategies can help mitigate some of the effects of environmental stressors on self-regulation development. However, the identified barriers, including time constraints and the need for consistent individual attention, highlight the ongoing challenges in providing equitable access to quality early childhood education. These findings support (Syafirah et al., 2023) emphasis on the need to identify and implement inclusive educational practices in Indonesian preschool settings.

The successful adaptation of scaffolding principles to Indonesian cultural contexts addresses the research gap identified by Nugraheni et al., (2021), and Amanullah et al., (2022). The study demonstrates that scaffolding techniques can be effectively implemented within Indonesian early childhood education contexts while respecting cultural values and institutional missions.

The integration of Islamic values at Halimah As-Sa'diyah Playgroup and the structured individual approach at Al Islam Kindergarten both proved effective, suggesting that multiple pathways exist for successful scaffolding

implementation. The positive outcomes observed in both institutions support Padilah, (2023) findings on the strong correlation between scaffolding learning and social skills development. The comprehensive improvements in communication, cooperation, and empathy observed across both settings demonstrate the multifaceted benefits of well-designed scaffolding interventions. Theoretical Implications

This study makes three theoretical contributions. First, it extends Vygotsky's ZPD framework by demonstrating that the zone is not culturally neutral: the mulazamah approach redefines "more knowledgeable other" to encompass spiritual mentorship alongside cognitive guidance, expanding sociocultural theory's applicability in faith-based educational contexts. Second, the findings nuance Diamond's (2013) three-component self-regulation model by showing that spiritual self-talk (e.g., istighfar) constitutes a culturally embedded form of emotional regulation not previously theorised within that framework. Third, the dual-site comparison provides empirical grounding for a culturally responsive scaffolding continuum ranging from standards-aligned structured support to values-integrated spiritual mentoring. Limitations Several limitations must be acknowledged. The two-month observation period, though intensive, may not capture long-term sustainability of the observed improvements. Future longitudinal studies would provide valuable data on lasting effects.

Additionally, the study's focus on two institutions with different characteristics provides rich contextual data but limits generalizability. Future research should include a broader range of institutions across various socio-economic and cultural contexts to develop more comprehensive understanding of effective scaffolding practices in Indonesian early childhood education. The study also highlights the need for further research on teacher professional development programs specifically designed for scaffolding implementation. Investigating the most effective training methods and support systems for teachers would contribute significantly to the field's practical applications.

5. Conclusion

This study reveals that scaffolding to enhance self-regulation in Indonesian early childhood education is most effective when culturally adapted to institutional values and community contexts. The main findings confirm that TK Al Islam and Kelompok Bermain Halimah As-Sa'diyah successfully applied effective yet contextually distinct scaffolding strategies. Scaffolding proved effective across three key components: emotional, cognitive, and behavioural regulation. TK Al Islam demonstrated strengths in structured individual scaffolding with gradual support withdrawal, while KB Halimah As-Sa'diyah excelled through the mulazamah approach integrating Islamic spiritual values into every regulatory dimension. Both institutions demonstrate that synergy between pedagogical approach, institutional vision, and environmental design is essential for scaffolding effectiveness. However, the two-month study window and dual-site design limit generalisability, and future longitudinal, multi-site studies are recommended.

Key factors contributing to successful scaffolding implementation include teacher competence in identifying children's ZPD, child responsiveness, environmental support, and institutional value alignment. Recommendations for Practice: Teachers should use structured observation records to track ZPD progression. Principals should embed scaffolding as a core standard in professional development. Policymakers should integrate culturally responsive scaffolding including mulazamah into the national PAUD curriculum. Future Research: Longitudinal studies tracking children from preschool through early primary school, comparative research across diverse PAUD types, and mixed-methods designs combining quantitative self-regulation measures with qualitative data are all needed to strengthen and extend these findings. self-regulation skills across diverse Indonesian early childhood contexts.

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