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A Case Study On Self-Regulation In Early Childhood With Intellectual Developmental Delay

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ABSTRACT

Self-regulation is a crucial ability in early childhood development, encompassing the control of attention, behavior, and emotions within learning contexts and social interactions. This ability serves as a foundational component of children's learning readiness and social adjustment in educational settings. Children with intellectual developmental delay often experience difficulties in self-regulation due to limitations in cognitive capacity and executive functioning, which subsequently affect learning engagement and social adaptability. This study aimed to describe the self-regulation of an early childhood learner with intellectual developmental delay using a case study approach. The research employed a descriptive qualitative method with continuous observation conducted over a four-month period in a kindergarten learning environment. The research subject was a six-year-old child diagnosed with moderate intellectual developmental delay. Observations focused on attention regulation, behavioral regulation, emotional regulation, and social-emotional functioning during learning activities. The findings revealed that the child's self-regulation had not developed in accordance with chronological age expectations. The most prominent difficulties included limited sustained attention, dependence on external guidance for behavior regulation, emotional instability when facing challenges, and restricted peer interactions. These findings indicate that intellectual developmental delay affects multiple and interrelated aspects of self-regulation, highlighting the importance of understanding self-regulation based on developmental rather than chronological age.

Keywords: *Self-Regulation Skills, Intellectual Disability, Early Childhood Education*

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INTRODUCTION

Early childhood represents a foundational period in human development during which cognitive, emotional, and social capacities rapidly emerge and interact. One of the most critical competencies developed during this stage is self-regulation, defined as the ability to manage attention, behavior, and emotions in accordance with situational demands. Self-regulation is widely recognized as a strong predictor of school readiness, academic achievement, and long-term adaptive functioning (Blair & Raver, 2015;

McClelland et al., 2014). In early educational settings, children are expected to sustain attention, follow instructions, control impulses, and regulate emotional responses. Therefore, understanding self-regulation in early childhood is essential for ensuring successful participation in structured learning environments.

Self-regulation is closely intertwined with social-emotional development and executive functioning processes. Research indicates that attentional control supports sustained engagement in learning tasks, while emotional regulation enables children to respond adaptively to frustration and peer interaction challenges (Denham et al., 2012; Eisenberg et al., 2010). Developmentally, self-regulation emerges through dynamic interactions between neurological maturation and environmental support, particularly adult scaffolding and guided participation. From a sociocultural perspective, self-regulatory skills are initially externally regulated by caregivers or teachers and gradually internalized through social interaction (Vygotsky, 1978). This theoretical framework establishes normative developmental expectations against which variations or delays can be examined.

However, the development of self-regulation may follow a different trajectory in children with intellectual developmental delay. According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.), intellectual developmental delay is characterized by limitations in intellectual functioning and adaptive behavior that affect conceptual, social, and practical domains (American Psychiatric Association, 2013). Cognitive limitations in executive functioning may directly impact attentional control, impulse regulation, and emotional modulation (Barkley, 2015). Consequently, children with intellectual delay often display prolonged dependence on adult regulation, difficulty maintaining task focus, and challenges in managing emotional responses during structured activities.

Although prior studies have explored self-regulation and executive functioning in children with developmental challenges, much of the existing research relies on quantitative measures or group comparisons (Blair & Raver, 2015; McClelland et al., 2014). Such approaches provide valuable generalizable findings but may overlook the nuanced, context-bound manifestations of self-regulation in individual children. Furthermore, there remains limited qualitative research that examines how self-regulatory processes unfold in real classroom contexts among young children with intellectual developmental delay. A case study design offers methodological depth by capturing behavioral patterns, emotional responses, and social interactions as they naturally occur (Yin, 2018). This gap underscores the need for contextualized, in-depth investigation.

Based on this gap, the present study seeks to address the following research question: *How does self-regulation manifest in an early childhood learner with moderate intellectual developmental delay within classroom learning activities?* The objective of this study is to describe the child's self-regulation profile, specifically focusing on attention regulation, behavioral regulation, emotional regulation, and social-emotional functioning during instructional sessions.

This research contributes to the field of early childhood education by providing an in-depth qualitative portrayal of self-regulation in a child with intellectual developmental delay, grounded in authentic classroom observation. By adopting a developmental-age

perspective rather than relying solely on chronological expectations, this study offers practical insights for educators in designing developmentally responsive learning environments. The findings are expected to inform instructional adaptation, scaffolding strategies, and individualized support planning for children with intellectual developmental delay, thereby enriching the empirical and practical discourse on inclusive early childhood education.

METHOD

Research Design

This study employed a qualitative research approach using a descriptive case study design. A qualitative method was selected to obtain an in-depth understanding of self-regulation as a developmental phenomenon within a natural classroom context. Rather than examining causal relationships or testing hypotheses, this study aimed to explore how self-regulation manifests in everyday learning activities. The case study design enabled comprehensive examination of behavioral, emotional, and social processes as they occurred in real-life educational settings. This approach is appropriate for investigating complex developmental characteristics in children with special educational needs within a holistic and contextual framework.

Subject and Research Setting

The subject of this study was a six-year-old boy diagnosed with moderate intellectual developmental delay based on a professional psychological assessment. To ensure ethical standards and confidentiality, the child is referred to by the pseudonym WIV. The diagnosis indicated limitations in intellectual functioning and adaptive behavior, which were relevant to understanding the child's self-regulatory capacities.

The research was conducted in a private kindergarten in Central Kalimantan, Indonesia. The setting was selected because the child was actively engaged in regular classroom learning activities, allowing for naturalistic observation of self-regulation behaviors within authentic instructional contexts.

Data Collection Procedure

Data were collected through non-participant observation over a four-month period. Observations were conducted during learning activities in the art center, including coloring, cutting, and pasting tasks. The art center was chosen because these activities require sustained attention, behavioral control, emotional regulation, and interaction with peers and teachers.

The researcher systematically recorded verbal and non-verbal behaviors using structured observation guidelines grounded in theoretical frameworks of self-regulation. The observed aspects included: (1) attention regulation, (2) behavioral regulation, (3) emotional regulation, and (4) social-emotional regulation. Observations were conducted repeatedly across different activities and sessions to capture behavioral consistency and

variation. All data were documented in detailed field notes describing situational context, teacher instructions, peer interaction, and the child's responses.

Data Analysis

Data analysis followed a descriptive qualitative analysis procedure consisting of three stages: data reduction, data display, and conclusion drawing. During data reduction, observational data were organized and categorized according to the four dimensions of self-regulation. Data were then displayed in narrative form to identify recurring behavioral patterns within each dimension. Finally, conclusions were drawn by interpreting consistent patterns of attention control, behavioral compliance, emotional responses, and social interaction across observation sessions.

To enhance trustworthiness, prolonged observation and repeated data collection were conducted over different activities and time periods. Contextual factors influencing behavior were carefully considered during analysis to ensure accurate and developmentally grounded interpretation.

FINDING

Main Findings

This study aimed to describe the self-regulation profile of an early childhood learner with moderate intellectual developmental delay across four dimensions: attention regulation, behavioral regulation, emotional regulation, and social-emotional regulation. The findings are based on repeated observations conducted over a four-month period in art center learning activities.

Overall, observational data show recurring patterns across all four dimensions of self-regulation during classroom participation.

Table 1. Summary of Observational Data on Child's Self-Regulation

Aspect of Self-Regulation	Observation Indicators	Empirical Findings
Attention Regulation	Maintaining focus on tasks	Attention was easily distracted; tasks were frequently left unfinished
	Following instructions	Required repeated guidance from the teacher
Behavioral Regulation	Compliance with rules	Followed rules only with direct teacher guidance
	Impulse control	Impulsive behaviors frequently appeared
Emotional Regulation	Response to difficulty	Easily frustrated when tasks were perceived as difficult
	Emotional management	Emotions expressed through refusal or withdrawal

Social-Emotional Regulation	Peer interaction	Limited interaction; rarely initiated engagement
	Teacher relationship	Frequently sought interaction with the teacher

Attention Regulation

During art center activities, the child demonstrated difficulty sustaining attention. Observations showed frequent distraction before task completion. The child required repeated prompts to return to assigned tasks. Difficulty in following multi-step instructions independently was observed across multiple sessions.

Behavioral Regulation

Behavioral regulation was characterized by rule-following behavior only when direct teacher guidance was provided. Independent maintenance of classroom rules was not consistently observed. Impulsive behaviors such as leaving the activity area and prematurely stopping tasks occurred during several observation sessions.

Emotional Regulation

When encountering task difficulty, the child displayed observable signs of frustration. Emotional expressions were primarily non-verbal and included withdrawing from activities or refusing to continue tasks. These responses were documented repeatedly across different activities over the observation period.

Social-Emotional Regulation

Peer interaction was limited during group activities. The child rarely initiated communication or collaborative engagement with classmates. Interaction was more frequently directed toward the teacher. This interaction pattern was consistently observed across sessions.

Summary of Results

Across the four observed dimensions, consistent behavioral patterns were documented over the four-month observation period. The data presented above reflect the child's observable self-regulation behaviors during natural classroom learning activities.

DISCUSSION

Interpretation of Findings

The findings of this study indicate that self-regulation in early childhood with moderate intellectual developmental delay develops at a level that does not align with chronological age expectations. Difficulties were consistently observed across attention, behavioral, emotional, and social-emotional domains. Among these domains, attention regulation emerged as the foundational component influencing other aspects of self-

regulation. When sustained attention was limited, difficulties in behavioral compliance and emotional control became more pronounced.

This pattern suggests that self-regulation functions as an integrative and hierarchical developmental system. Rather than operating as separate capacities, attention, behavior, and emotion appear dynamically interconnected. Weakness in attentional control reduces the child's ability to maintain task engagement, internalize rules, and manage emotional responses. Therefore, understanding self-regulation as a unified developmental construct is essential for interpreting regulatory challenges in children with intellectual developmental delay.

Behavioral findings further indicate reliance on external regulation. The child demonstrated rule compliance primarily under direct adult guidance, suggesting that internalization of classroom expectations had not yet fully developed. Emotional responses, particularly frustration and withdrawal when facing task difficulty, reflected challenges in adaptive emotional expression. Socially, the child directed interaction more frequently toward the teacher than peers, indicating dependence on perceived sources of security within the classroom environment. These findings underscore the developmental interconnectedness of cognitive capacity, executive functioning, and socio-emotional adjustment.

Relationship to Literature

The results are consistent with theoretical and empirical literature emphasizing the central role of executive functioning in self-regulation development. Executive function theory highlights attention control as a core mechanism underlying behavioral and emotional regulation (Barkley, 2015). Limitations in cognitive processing and working memory commonly observed in children with intellectual developmental delay directly affect sustained attention and impulse control.

The observed dependency on adult guidance aligns with sociocultural perspectives suggesting that self-regulation develops through scaffolded interaction before becoming internalized (Vygotsky, 1978). However, in children with developmental delays, this internalization process may occur more gradually due to cognitive limitations.

Furthermore, research on school readiness has identified self-regulation as a strong predictor of academic and social competence (Blair & Raver, 2015; McClelland et al., 2014). The present findings extend this literature by providing qualitative evidence of how regulatory challenges manifest in daily classroom participation for a child with intellectual delay. The emotional responses documented in this study are also consistent with research linking limited language and cognitive abilities to emotional dysregulation in children with developmental disabilities (American Psychiatric Association, 2013).

Thus, this case study supports existing theoretical frameworks while contributing contextualized insights into how these regulatory processes operate within a real classroom environment.

Limitations of the Study

Several limitations should be acknowledged. First, the study employed a single-case design, which limits generalizability. The findings reflect the self-regulation profile of one child and cannot be assumed to represent all children with intellectual developmental delay.

Second, data were collected solely through observation within one learning context, specifically the art center. Although observations were conducted repeatedly over four months, behaviors in other classroom centers or home environments were not examined. Additional data sources such as interviews with teachers or parents could provide a more comprehensive perspective.

Third, the absence of standardized measurement tools means that findings rely on descriptive qualitative interpretation. While repeated observations enhanced credibility, subjective bias in observation cannot be entirely eliminated.

Implications for Practice and Future Research

The findings carry important implications for early childhood education practice. First, instructional strategies for children with intellectual developmental delay should prioritize attention support as a foundation for broader self-regulation development. Structured routines, simplified instructions, and visual supports may reduce cognitive load and improve task engagement.

Second, consistent scaffolding and gradual release of responsibility are essential to support the internalization of behavioral rules. Teachers may need to provide sustained external regulation before expecting independent self-regulatory behavior.

Third, emotional regulation interventions should incorporate language development support to facilitate adaptive emotional expression. Teaching children strategies to label and communicate emotions may reduce withdrawal and frustration behaviors.

For future research, larger-scale qualitative or mixed-method studies are recommended to examine patterns of self-regulation across multiple children with intellectual developmental delay. Comparative studies between typically developing children and children with developmental delays may also clarify developmental differences in regulatory trajectories. Additionally, intervention-based research could explore effective strategies to strengthen self-regulation in inclusive classroom settings.

Overall, this study emphasizes that self-regulation in children with intellectual developmental delay should be understood as a dynamic, interrelated developmental system. Strengthening foundational attentional processes may serve as a key pathway toward improving broader behavioral, emotional, and social functioning within early childhood learning environments.

CONCLUSION

This study concludes that self-regulation in early childhood with moderate intellectual developmental delay develops unevenly and does not yet correspond to

expectations based on chronological age. Across four observed domains, attention regulation, behavioral regulation, emotional regulation, and social-emotional functioning, consistent patterns of regulatory difficulty were identified. These domains were not independent but appeared dynamically interconnected within classroom participation.

Attention regulation emerged as the most foundational domain influencing overall self-regulatory functioning. Limited ability to sustain focus was associated with increased dependence on teacher guidance, difficulty maintaining rule-consistent behavior, and challenges in managing emotional responses during learning tasks. Emotional instability, particularly in response to task difficulty, further affected peer interaction and participation in group activities. The findings highlight a developmental gap between environmental demands and the child's regulatory capacity within the classroom context.

Overall, this study affirms that self-regulation in children with intellectual developmental delay is multidimensional and contextually shaped. Understanding regulatory behavior through a developmental-age perspective rather than chronological expectations allows for more accurate and equitable interpretation of learning behaviors. These findings provide a foundation for designing developmentally responsive instructional strategies and suggest the need for further research examining targeted interventions to strengthen attention, behavioral control, and emotional regulation in inclusive early childhood settings.

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