

## Designing Learning-Oriented Assessment Systems in Indonesian Early Childhood Education: A Design-Based Research on Formative Assessment Practices

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### **Abstrak:**

Penelitian ini bertujuan untuk mengembangkan sistem penilaian yang berorientasi pada pembelajaran untuk pendidikan anak usia dini melalui pendekatan Penelitian Berbasis Desain (DBR) dalam konteks Kurikulum Merdeka. Penelitian ini dilakukan di TK Siwi Kencana di Kota Langsa, dengan melibatkan guru PAUD dan anak-anak dalam tahap uji coba. Fokus penelitian meliputi identifikasi praktik penilaian guru, pengembangan rancangan awal sistem berbasis penilaian untuk pembelajaran, analisis hasil implementasi terkait keterlibatan anak dan hasil belajar, serta perumusan prinsip-prinsip desain untuk sistem penilaian yang efektif. Data dikumpulkan melalui observasi, wawancara, analisis dokumen, dan studi artefak pembelajaran, kemudian dianalisis menggunakan metode kualitatif deskriptif. Hasil menunjukkan bahwa praktik penilaian guru masih bersifat administratif dan belum terintegrasi secara optimal dengan proses pembelajaran. Studi ini menghasilkan prototipe awal sistem penilaian formatif yang terdiri dari tujuh instrumen utama dan menunjukkan peningkatan dalam kualitas observasi guru, keterlibatan aktif anak-anak, serta kesesuaian intervensi pembelajaran lanjutan. Yang penting, penelitian ini menyumbangkan serangkaian prinsip desain untuk menerapkan penilaian yang berorientasi pada pembelajaran di lingkungan pendidikan anak usia dini, dengan menekankan integrasi, keaslian, partisipasi anak, dan responsivitas pedagogis. Temuan ini menggarisbawahi bahwa penilaian pendidikan anak usia dini perlu dikembangkan sebagai sistem pedagogis yang terintegrasi dengan proses pembelajaran berbasis bermain.

**Kata Kunci:** Asesmen formatif; Learning-Oriented Assessment; PAUD; Kurikulum Merdeka; Design-Based Research

## Abstract

This study aims to develop a learning-oriented assessment system for early childhood education through a Design-Based Research (DBR) approach within the context of the Merdeka Curriculum. The research was conducted at Siwi Kencana Kindergarten in Langsa City, involving ECE teachers and children in a pilot implementation. The research focus includes identifying teachers' assessment practices, developing a preliminary design for an assessment-for-learning-based system, analyzing the implementation results regarding children's engagement and learning outcomes, and formulating design principles for an effective assessment system. Data were collected through observation, interviews, document analysis, and the study of learning artifacts, and were then analyzed using descriptive qualitative methods. The results indicate that teachers' assessment practices remain largely administrative and have not been optimally integrated with learning. This study produced an initial prototype of a formative assessment system consisting of seven main instruments and demonstrated improvements in the quality of teacher observations, children's active engagement, and the appropriateness of follow-up learning interventions. Importantly, this study contributes a set of design principles for implementing learning-oriented assessment in early childhood settings, emphasizing integration, authenticity, child participation, and pedagogical responsiveness. These findings underscore that early childhood education assessment needs to be developed as a pedagogical system integrated with the play-based learning process.

**Keywords:** Formative Assessment; Learning-Oriented Assessment; Early Childhood Education; Merdeka Curriculum; Design-Based Research

## INTRODUCTION

Assessment is an essential component of the learning process, particularly in early childhood education (ECE), as it serves not only as a tool for determining children's developmental progress but also as a foundation for designing stimulation tailored to each child's needs, interests, and developmental characteristics. The implementation of assessment is essential in an educational institution for evaluating children's development (Efiawati et al., 2021). In the context of early childhood education, assessment should ideally not be viewed merely as a process of measuring final outcomes, but rather as an ongoing process integrated into children's play-based learning activities. Properly conducted assessment is a key component in fostering positive learning experiences and academic success (Neumann et al., 2019). This

perspective aligns with the view that assessment in early childhood should be authentic, contextual, process-oriented, and used to directly support pedagogical decision-making in learning practice (Alaçam, 2024; Herrmann, 2018).

In recent developments in assessment research, there has been a paradigm shift from “assessment of learning”—which emphasizes summative functions and the reporting of learning outcomes—toward “assessment for learning” and “assessment as learning,” which position assessment as an integral part of the learning process itself. Black and Wiliam (1998) assert that appropriately designed formative assessment can improve the quality of learning through the provision of meaningful feedback, the identification of learning needs, and the responsive adjustment of learning strategies. Furthermore, Earl explains that learning-oriented assessment enables learners—including young children in forms appropriate to their developmental stage—to actively engage in the process of reflection, making sense of learning experiences, and developing learning autonomy (Earl, 2006). In the context of early childhood education, these principles need to be translated into instruments and procedures appropriate to children’s characteristics, such as play observations, anecdotal notes, documentation of work, and symbol-based reflections.

In Indonesia, strengthening the role of formative assessment has become increasingly relevant with the implementation of the Merdeka Curriculum, which positions assessment as an integral part of child-centered learning. The concept of Merdeka Belajar grants children the freedom to choose the learning activities they desire, while also fulfilling their right to play voluntarily and with joy (Veryawan et al., 2023). Policy documents from the Ministry of Education, Culture, Research, and Technology emphasize that assessment under the Merdeka Curriculum must be used to monitor the learning process, provide feedback, and serve as the basis for designing learning that is more adaptive to students’ needs (Kemendikbud-Ristek, 2022). In early childhood education settings, assessment is aimed at capturing children’s holistic growth and development through naturalistic observation, behavioral documentation, their creative works, and their interactions during play activities. Thus, assessment should not be limited to the administrative function of reporting but must serve as a pedagogical tool that helps teachers understand children’s development more deeply and design appropriate follow-up stimulation (Clarke-midura et al., 2023).

Nevertheless, various studies indicate that assessment practices in Indonesian early childhood education institutions still face a number of challenges. At the

implementation level, assessment is often perceived as an administrative obligation that requires teachers to fill out various documentation forms, causing the primary focus to shift from using assessment data to improve learning toward meeting reporting requirements. Teachers often observe children during daily activities, but the results of these observations are not always organized systematically, are not explicitly linked to learning objectives, and are not optimally utilized to formulate feedback or follow-up interventions (Purnama et al., 2021; Toharudin, 2025). This situation indicates a gap between the requirements of formative assessment policies in the Merdeka Curriculum and actual assessment practices in the field.

In the context of early childhood education, this gap becomes increasingly important to examine because the learning characteristics of young children differ fundamentally from those of elementary and secondary school students. Children learn through concrete experiences, play, social interaction, exploration, and repetition in meaningful situations. Therefore, an effective assessment system in ECE must be able to capture the dynamics of children's learning processes in a natural, flexible, and continuous manner, as well as provide information that teachers can easily use to adapt learning stimuli. An assessment system that is too formal, rigid, or focused on final outcomes risks overlooking the complexity of children's development and is inconsistent with the pedagogical principles of early childhood education (Bredekamp, 2020; Wortham & Hardin, 2005). Conversely, learning-oriented assessment needs to be designed as a simple yet functional ecosystem that connects learning objectives, observations, interpretations of development, feedback, children's reflections, portfolio documentation, and follow-up stimulation.

One relevant approach to addressing these needs is learning-oriented assessment—an assessment approach designed to directly support learning, place feedback at its core, encourage active learner engagement, and integrate assessment into the daily learning process (Carless, 2007, 2015). In the context of early childhood education, this approach cannot be directly adopted from models used at higher levels but must be adapted through contextual designs that account for children's developmental characteristics, teachers' learning cultures, and national policy requirements. Therefore, efforts are needed to develop an assessment system that is not only theoretically normative but also practical, applicable, and aligned with the realities of Indonesian early childhood education institutions.

To produce a contextual and practical design, this study employs a Design-Based Research (DBR) approach. DBR is a research approach aimed at developing educational solutions through a cycle of problem analysis, prototype design, implementation in real-world contexts, reflection, and the formulation of design principles (Akker et al., 2013; Wang & Hannafin, 2005). This approach is considered appropriate because it allows researchers not only to describe assessment problems in the field but also to design and test prototypes of formative assessment systems directly with teachers. In the context of this study, DBR was used to develop a learning-oriented assessment system that includes learning objectives and progress indicators, a child engagement observation checklist, anecdotal notes, portfolio documentation, a teacher formative feedback form, simple symbol-based child reflections, and a learning stimulation follow-up sheet.

This study was conducted at Siwi Kencana Kindergarten in Langsa City, involving 6 teachers and 25 children as subjects in a pilot implementation. The selection of this location was based on the consideration that the school had already implemented the Merdeka Curriculum and had a genuine need to strengthen formative assessment practices that are more structured, simple, and meaningful for learning. Empirically, a preliminary study indicated that teachers had been conducting assessments through daily observations and documentation of student work; however, there was no integrated system explicitly linking assessments to formative feedback and follow-up interventions. This situation made the school a relevant context for developing a learning-oriented assessment prototype.

Based on the above, this study aims to: (1) describe early childhood education (ECE) teachers' assessment practices within the context of the Merdeka Curriculum, (2) develop a preliminary design for an assessment-for-learning-based system, (3) analyze the system's implementation outcomes regarding children's engagement and learning achievements, and (4) formulate design principles for an effective learning assessment system in Indonesian PAUD. This study is expected to provide a theoretical contribution to the development of learning-oriented assessment studies in early childhood education, as well as a practical contribution in the form of a contextual, simple, and adaptable formative assessment system model for early childhood education institutions in Indonesia.

## METHOD

This study employs a Design-Based Research (DBR) approach to develop a learning-oriented assessment system for early childhood education (ECE). The DBR approach was chosen because it facilitates the development of educational innovations through direct interaction between theory and practice, with a focus on solving real-world problems in the field and formulating design principles applicable to similar contexts (Tinoca et al., 2022). In this study, DBR was used to identify ECE teachers' assessment practices within the context of the Merdeka Curriculum, design an initial prototype of an assessment-for-learning-based system, implement it in real-world learning contexts, and reflect on the implementation results to generate relevant design principles.

The research was conducted as a limited-scale pilot study at Siwi Kencana Kindergarten in Langsa City. The research participants consisted of 6 early childhood education teachers and 25 children as subjects of the implementation in play-based learning activities. Participants were selected purposively, considering that the educational institution had already implemented the Merdeka Curriculum and its teachers were actively involved in developing child development assessments. The students were involved as subjects of the implementation to observe their engagement and learning responses during the use of the formative assessment prototype.

The research procedure followed the four main stages of DBR, namely: (1) needs analysis and problem identification, (2) design of an initial prototype, (3) implementation and limited testing, and (4) reflection and formulation of design principles. In the first stage, the researchers conducted classroom observations, semi-structured interviews with teachers and school principals, and an analysis of assessment documents used during the implementation of the Merdeka Curriculum. The second stage produced an initial prototype in the form of a formative assessment instrument package that included: learning objective and development indicator sheets, a child engagement observation checklist, a teacher anecdotal note format, a child portfolio documentation sheet, a formative feedback format, a simple symbol/picture-based child reflection sheet, and a learning stimulation follow-up sheet. The third phase was conducted through limited implementation in several thematic play-based learning activities, while the fourth phase focused on analyzing the implementation results and formulating design principles.

Research data were collected through participatory observation, semi-structured interviews, document analysis, and a study of learning artifacts. Observation was used to capture teachers' assessment practices and children's engagement during learning. Interviews were conducted to explore teachers' perceptions of assessment, implementation challenges, and experiences using the prototype. Document analysis included teachers' assessment tools, progress notes, and learning reports. The artifact study included children's work, portfolios, anecdotal notes, and children's reflection sheets. Data were analyzed qualitatively and descriptively through the stages of data reduction, thematic categorization, data presentation, and drawing conclusions. Data validity was ensured through triangulation of sources and techniques, as well as member checking with participating teachers to ensure consistency in the interpretation of research results.

## RESULT AND DISCUSSION

### 1. Early Childhood Education Teachers' Assessment Practices in the Context of the Merdeka Curriculum

The results of the needs analysis indicate that assessment practices at Siwi Kencana Kindergarten in Langsa City have generally adhered to the principles of authentic assessment as emphasized in the Merdeka Curriculum. The six teachers who participated in the study have generally used daily observations, progress notes, documentation of student work, and narrative reports as part of their assessment practices. However, the results of classroom observations and document analysis show that assessment is still predominantly positioned as an administrative recording tool rather than as a tool that directly guides the learning process.

Field findings indicate that most teachers conduct assessment documentation after learning activities have concluded, primarily in the form of progress summaries or filling out report forms. This practice results in children's learning evidence not always being optimally utilized to provide immediate feedback during the ongoing play-and-learn process. In some cases, teachers reported that time constraints, the volume of classroom activities, and the complexity of documentation lead to assessments being perceived more often as a reporting obligation rather than as a pedagogical strategy. This indicates a gap between the spirit of the Merdeka

Curriculum, which emphasizes assessment as an integral part of learning, and actual classroom practices that remain largely focused on documenting outcomes.

Interviews with teachers also revealed that they still struggle to connect learning objectives, developmental indicators, evidence of children's behavior, and the follow-up interventions that need to be provided. For example, a teacher might observe that a child lacks focus or is passive during a particular activity, but lacks a systematic framework for linking that observation to subsequent learning support strategies. In other words, assessment information has not yet fully functioned as the basis for pedagogical decision-making. This situation underscores that the main issue lies not in the absence of assessment, but in the lack of an assessment system that is integrated into the learning process.

From the children's perspective, initial observations of 25 children revealed significant variations in engagement during play-based learning activities. Some children demonstrated active participation, high initiative, and the ability to complete activities independently, while others tended to be passive, easily distracted, or required frequent guidance from the teacher. In previous assessment practices, this variation was not systematically documented, making it more difficult for teachers to identify individual children's engagement patterns over time. Therefore, the needs analysis phase underscores the urgency of developing a formative assessment system that can help teachers capture children's learning processes in greater detail, in a contextual manner, and in a way that allows for immediate follow-up. In early childhood education institutions, various assessment approaches have been used, including direct observation, anecdotal records, developmental checklists, digital interactive media, and role-playing and storytelling. Each method has its own strengths in comprehensively capturing children's social and emotional aspects within the learning context (Yuliana & Aslamiah, 2025).

Theoretically, these findings indicate that assessment in early childhood education (ECE) within the context of the Merdeka Curriculum still requires a paradigm shift—from merely “assessment of learning” to “assessment for learning.” At the early childhood education level, effective assessment should not only record children's developmental outcomes but also capture the quality of their engagement, interests, social interactions, play strategies, and responses to stimulation. Thus, assessment must be positioned as a reflective tool that helps teachers interpret

children's learning processes and design subsequent learning experiences in a more responsive manner. For the field of early childhood education and learning through play, this involves advancing a theoretical framework on how learning opportunities through play can lead to engagement in the learning process, and systematically operationalizing these opportunities at the classroom level within under-researched contexts (Wolf et al., 2025).

## **2. Development of an Initial Design for an Assessment-for-Learning-Based Assessment System**

Based on the findings of the needs analysis phase, this study developed an initial prototype of a learning-oriented assessment system designed as an integrated set of instruments to support the practice of assessment for learning in early childhood education. The prototype was developed through reflective discussions with teachers, analysis of practical classroom needs, and adaptation to the characteristics of play-based learning in the Merdeka Curriculum. This prototype is designed to be simple, flexible, easy to use, and directly linked to pedagogical decision-making during learning.

The resulting prototype consists of seven main components, namely: (1) a learning objectives and developmental indicators sheet, (2) an observation checklist for children's engagement during play-based learning, (3) a teacher's anecdotal note format, (4) a documentation sheet for children's work or portfolio, (5) a teacher formative feedback form, (6) a simple symbol/picture-based reflection sheet for children, and (7) a learning stimulation follow-up sheet. These seven components are designed as an interconnected assessment process, beginning with the establishment of goals and indicators, observation of the process, recording of authentic evidence, provision of feedback, engagement of children in reflection, and planning for further stimulation. Formative assessment is conducted systematically through the stages of planning, instrument development, observation, recording of results, and delivery of feedback to parents. Assessment is conducted using observation, assignments, question-and-answer sessions, and student work, with contextual checklists and portfolios as instruments (Munthe & Yus, 2026).

Learning objective sheets and developmental indicators serve to help teachers align play-based learning activities with the developmental outcomes to be observed. These tools serve as a crucial foundation because, in early practice, teachers often lack

an explicit connection between learning activities and assessment focus. The child engagement observation checklist is designed to capture dimensions of the learning process, such as attention, participation, initiative, social interaction, persistence, and response to instructions. The anecdotal note format is used to document meaningful behaviors or significant events that cannot be fully captured by checklist indicators. Meanwhile, a portfolio of student work allows teachers to record evidence of development in the form of artifacts that can be analyzed longitudinally.

Prototype development also emphasizes the importance of feedback quality. Therefore, the teacher feedback format is designed to shift practices from general praise toward more specific, process-oriented comments that encourage children to attempt the next step. Simple symbol/picture-based reflection sheets are designed to provide space for young children to express their learning experiences nonverbally or semi-verbally. The stimulation follow-up sheet serves as a link between assessment results and the teacher's pedagogical decisions, for example in the form of individual reinforcement, activity modification, or enrichment of stimulation. Students' perceptions and their role in self-assessment are considered alongside an analysis of the strategies used by the teacher and the formative strategies incorporated into a systemic approach such as mastery learning (Black & Wiliam, 1998).

Conceptually, this prototype design demonstrates that the assessment system in early childhood education cannot be reduced to a collection of administrative forms. Rather, assessment must be designed as a pedagogical system that supports teachers in observing, interpreting, responding to, and planning learning on an ongoing basis. Within the framework of Design-Based Research, this prototype is an initial design that is adaptive and open to revision based on the results of field implementation.

### **3. Results of the Prototype Implementation on Children's Engagement and Learning Outcomes**

A limited implementation of the prototype was conducted in several thematic play-based learning activities involving 25 young children at TKN Siwi Kencana in Langsa City. The results of the implementation showed that the developed assessment system had a positive impact on the quality of teachers' observations, children's engagement in learning, and the appropriateness of the follow-up

stimulation designed by teachers. All six participating teachers reported that the instrument used helped them focus more on observing children's learning processes directly, rather than merely taking notes after the activity ended.

Based on the results of the engagement observation checklist, during the initial implementation phase, it was found that out of 25 children, 10 were in the high engagement category, 9 in the moderate engagement category, and 6 in the low engagement category. After using the prototype over several learning cycles, a significant change occurred: 16 children demonstrated high engagement, 7 were in the moderate category, and only 2 still showed low engagement. This improvement was particularly evident in indicators such as attention to activities, willingness to try, interaction with peers, and persistence in completing simple play tasks. These data indicate that when teachers have clear and structured observation tools, they can more quickly identify children's support needs and adjust learning strategies in a more responsive manner.

In terms of learning outcomes, portfolio documentation, anecdotal notes, and observation results indicate progress on several indicators targeted in the learning activities. The children demonstrated improvements in their ability to follow simple instructions, express ideas verbally and nonverbally, complete activities thoroughly, collaborate with peers, and demonstrate independence in using play materials and tools. Although this study was not designed to produce large-scale quantitative generalizations, qualitative findings from various data sources indicate that the use of a formative assessment system helps teachers gain a richer and more meaningful picture of children's development compared to previous assessment practices.

One of the most notable findings from the implementation is the change in the quality of teacher feedback. Before the intervention, the feedback provided was generally still vague, such as "good," "great," or "smart." After adopting the formative feedback format, teachers began providing more specific responses, such as highlighting the child's effort ("you tried stacking the blocks really high"), the strategies used ("you chose the same colors, and that made your picture neat"), or next steps ("try adding one more shape to make it more complete"). This shift is important because, from an assessment-for-learning perspective, effective feedback must help children understand their learning process, not merely receive praise.

Simple symbol/picture-based reflection sheets also yielded positive results. Most children were able to select symbols representing their feelings or experiences

after participating in an activity, such as a happy face, a neutral face, or a “need help” symbol. Although this form of reflection is very simple, teachers report that the tool helps them understand children’s emotional responses to specific activities. Children who select the “need help” symbol or show hesitant expressions can be quickly identified and provided with additional support in subsequent activities. This confirms that children’s engagement in assessment can still be facilitated at the early childhood education level through formats appropriate to their developmental stage.

From the teachers’ perspective, post-implementation interviews revealed that the prototype helped them see a clearer connection between learning objectives, observed student behaviors, and follow-up interventions. Teachers reported that it became easier for them to identify which students required reinforcement, who needed additional support, and how to modify activities to better align with students’ developmental needs. Thus, the implementation of the prototype not only impacts the children but also strengthens teachers’ reflective capacity and pedagogical decision-making. The research findings indicate that the majority of teachers still rely on manual assessment methods that do not fully involve parents and face challenges regarding accuracy and efficiency. The implications of these findings highlight the need to develop digital assessment tools and provide teacher training to improve the quality and effectiveness of assessment collaboration in early childhood education (Syafitri et al., 2025).

Overall, the implementation results indicate that the learning-oriented assessment system developed holds strong potential to enhance the quality of learning in early childhood education. Assessment no longer stops at recording development but begins to function as a mechanism for diagnosis, feedback, and continuous learning planning. This aligns with the findings of a study conducted by (Fauziyah et al., 2025) which showed that assessment is conducted in a formative, continuous, and contextual manner using various techniques such as observation, anecdotal notes, checklists, portfolios, and photo series. Teachers play a crucial role in tailoring assessments to children’s characteristics. Assessments for children are also conducted collaboratively. These findings imply the importance of enhancing teachers’ competencies as well as cross-sectoral collaboration to support holistic and meaningful assessments in early childhood education. The study concludes that sustained implementation of alternative assessments requires systemic support

including professional development, collaborative planning structures, and equitable access to digital tools (Ginancar et al., 2025).

#### **4. Design Principles for an Effective Learning Assessment System in Indonesian Early Childhood Education**

Based on the overall Design-Based Research process, this study formulates a number of preliminary design principles that can serve as a foundation for the development of a learning assessment system in early childhood education in Indonesia.

- a. First, assessment must be integrated into the play-and-learn process. Effective assessment in early childhood education cannot be treated as a separate activity conducted after learning has concluded; rather, it must be embedded within daily pedagogical interactions. Observations of children should be conducted naturally while they are playing, exploring, interacting, and expressing themselves. This integration makes the assessment more authentic and does not disrupt the children's learning rhythm.
- b. Second, assessment instruments must be simple, flexible, and sustainable for teachers to use. Research findings indicate that overly complex instruments tend to be difficult to use consistently. Therefore, assessment formats need to be designed with operational indicators, clear language, and a structure that is easily adaptable to themes or activities. Simplicity is a crucial prerequisite for assessment to truly become a living part of teachers' daily practice.
- c. Third, assessment should focus on the developmental process, not just the final outcome. In early childhood education, children's learning processes—such as attention, initiative, interaction, willingness to try, and persistence—are often more meaningful than the final product alone. Therefore, an effective assessment system needs to prioritize process observation, not just the documentation of final products or achievements.
- d. Fourth, formative feedback must be specific, immediate, and supportive of the child's motivation. Feedback in early childhood education should focus on the child's efforts, strategies, and next steps they can take. General praise remains important as emotional reinforcement, but it is insufficient to drive meaningful learning. Specific feedback helps children understand that their learning process is valued and that they can continue to grow.

- e. Fifth, children need to be involved in assessment through methods appropriate to their developmental stage. Although young children are not yet capable of complex abstract reflection, they can still be engaged through symbols, pictures, choices of expression, or simple conversations. This involvement strengthens the student's voice in assessment and helps teachers understand learning experiences from the child's perspective.
- f. Sixth, assessment results must be directly linked to follow-up learning interventions. Assessment becomes meaningful when every piece of information obtained from observation is used to make pedagogical decisions, such as modifying activities, providing individual reinforcement, enrichment, or additional support. Thus, assessment serves as a bridge between observation and action.

Overall, these design principles indicate that an effective assessment system in Indonesian early childhood education must be authentic, formative, contextual, responsive, simple, and child-development-oriented. Assessments are conducted authentically using anecdotal records, portfolios, checklists, student work samples, and photo series integrated into play. Assessments serve as tools for mapping development and reflecting on learning. The implications of these findings encourage early childhood education programs to integrate contextual and meaningful local cultural assessments into play activities (Harisa et al., 2026). These principles represent a significant contribution of this research because they not only yield prototype instruments but also design knowledge that can be replicated and further developed in other early childhood education contexts. Given the importance of fostering interest in developing early childhood learning pathways to support evidence-based planning for enjoyable learning, there is a need for research to explore children's conceptual development and to incorporate this information into early teacher education programs (Cohrsen et al., 2025).

## 5. Theoretical Discussion and Implications

The findings of this study reinforce the view that the transformation of assessment in the Merdeka Curriculum cannot be achieved solely at the policy level but requires concrete pedagogical design at the classroom practice level. In early childhood education (PAUD), assessment must be reconceived as an integral part of learning that supports children's holistic development. Findings from the TKN Siwi

Kencana study in Langsa City indicate that when assessment is designed as an integrated system—encompassing objectives, observation, feedback, reflection, and follow-up—teachers become better equipped to understand children’s individual needs and adapt learning strategies more responsively.

From a learning-oriented assessment perspective, this study emphasizes that effective assessment not only provides information about what children have achieved but also guides how they can learn more effectively in the next stage. This is particularly relevant in early childhood education (PAUD) because children’s development is dynamic, nonlinear, and heavily influenced by the quality of their interactions with teachers. Thus, assessment should not be viewed as a static tool but as a living, reflective mechanism embedded in daily classroom interactions.

From the perspective of Design-Based Research, this study also demonstrates that relevant educational innovations do not arise from the direct transfer of theory but from the process of adapting theory to real-world contexts. The concepts of assessment for learning and learning-oriented assessment are translated into tools suited to the characteristics of Indonesian early childhood education, including play-based learning, authentic observation, teachers’ time constraints, and the need for simple yet meaningful documentation of development. Therefore, this study offers a dual contribution: a practical contribution in the form of an assessment instrument prototype, and a theoretical contribution in the form of design principles that can serve as a reference for further research and policy development.

## CONCLUSION

This study indicates that early childhood education (ECE) teachers’ assessment practices within the context of the Merdeka Curriculum at Siwi Kencana Kindergarten in Langsa City still tend to be administrative in nature and have not yet been fully integrated into the learning process. Although teachers have utilized various forms of authentic assessment—such as observations, progress notes, and portfolios—their use remains predominantly for documenting outcomes rather than as tools to directly support learning. This situation underscores the need to develop a more structured, contextual, and assessment-for-learning-oriented assessment system.

Through a Design-Based Research approach, this study successfully developed an initial prototype of a learning-oriented assessment system consisting

of seven main components: learning objective and developmental indicator sheets, a child engagement observation checklist, teacher anecdotal notes, child portfolio documentation, a formative feedback form, a simple child reflection sheet, and a learning stimulation follow-up sheet. This prototype is designed as an integrated system that connects the processes of observation, documentation, feedback, and pedagogical decision-making.

Limited implementation results with 25 children indicate that the use of the prototype enhances the quality of teachers' observations, strengthens children's engagement in play-based learning activities, improves the quality of formative feedback, and facilitates teachers in designing more appropriate follow-up learning interventions. Furthermore, this study identified design principles stating that an effective assessment system in Indonesian early childhood education must be integrated with play-based learning, simple, authentic, process-oriented, child-centered, and directly used to support learning decisions. Thus, assessment in early childhood education should be understood not merely as a tool for documenting development, but as a pedagogical system that supports children's learning and development in a sustainable manner.

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