

Development of a Smart Instrument for Social and Emotional Skills at TK Ratna Kusuma

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Abstract

Early childhood is a golden age that determines the quality of a child's future development. During the ages of 0–6 years, children experience rapid growth in various aspects, including social and emotional skills (Hurlock, 2011; Santrock, 2020). However, the assessment of these aspects in early childhood education (PAUD) remains limited and often subjective. This study aims to develop an assessment instrument for the social and emotional skills of children aged 5–6 years at TK Ratna Kusuma. The research method used is Research and Development (R&D) based on the Borg & Gall model, which was adapted into six stages and involved 10 students. The developed instrument consists of an observation sheet containing 18 valid and reliable items, covering aspects of self-awareness, independence and responsibility, social relationships and empathy, as well as communication skills. The validity test showed that most of the items were significant, while the instrument's reliability reached 0.915 (very high). Therefore, this instrument is feasible to be used as an objective and practical tool for assessing the social and emotional skills of early childhood.

Keywords: Assessment Instrument, Social-Emotional Skills, Early Childhood, PAUD, R&D.

INTRODUCTION

This research employed the Research and Development (R&D) approach, adapting the Borg and Gall (1983) model. The original ten-step model was streamlined into six stages to align with the scope and practical needs of this study. The R&D method was selected because it provides a systematic framework for designing, testing, and refining an assessment instrument to ensure its validity, reliability, practicality, and effectiveness in early childhood education settings (Borg and Gall 1983).

The first stage was the preliminary study, which involved a literature review and field observations. The literature review aimed to identify theoretical foundations and existing instruments related to social and emotional assessment in early childhood education. Meanwhile, field observations and interviews with early childhood teachers were conducted to understand current practices and challenges. Findings revealed that most teachers relied on subjective observations without standardized tools, highlighting the need for a valid and reliable assessment instrument.

The second stage focused on product design. Based on theoretical synthesis and field data, a draft instrument was developed, consisting of 20 items that represent key domains of social and emotional development, namely cooperation, empathy, emotional regulation, self-control, and respect for others. The instrument was designed as an observational checklist with four rating scales: BB (Not Yet Developed), MB (Beginning to Develop), BSH

(Developing as Expected), and BSB (Highly Developed). This format was chosen for its simplicity and suitability for classroom use.

The third stage involved expert validation. Three experts—content, language, and media specialists—evaluated the draft instrument. They assessed the content relevance, language clarity, and practical feasibility of the tool. The experts provided constructive feedback to enhance the precision of each item and ensure consistency with developmental psychology principles. This expert input played a crucial role in refining the language, structure, and clarity of the assessment indicators.

The fourth stage was the revision phase, which aimed to improve the instrument based on expert feedback. Revisions included simplifying the wording of several items, adjusting the behavioral descriptors, and ensuring that each item accurately reflected observable behaviors relevant to children aged 5–6 years. The revised instrument was then reviewed again by the research team to confirm its readiness for pilot testing.

The fifth stage was the product trial. The pilot study was conducted in an early childhood education institution with 11 children aged 5–6 years. Teachers observed the children during various classroom activities and used the instrument to record their observations. The collected data were then analyzed to determine item validity and reliability, ensuring that each statement accurately measured the intended construct of social and emotional development.

The sixth stage focused on data analysis and refinement of the final product. Validity was analyzed using the Pearson Product Moment correlation, while reliability was tested through Cronbach's Alpha. Items that did not meet the minimum correlation threshold were excluded from the final version. In addition, practicality and effectiveness were evaluated based on teacher feedback obtained through questionnaires. Teachers reported that the instrument was easy to use and effective in identifying children's social and emotional competencies (Solihah et al., 2020).

Finally, the results of the validation, reliability, and practicality tests informed the development of the final product. The instrument retained 18 valid items and demonstrated a high reliability coefficient ($\alpha = 0.915$), categorized as "very high." Furthermore, the practicality score of 88% and teacher satisfaction rate exceeding 85% confirmed the instrument's feasibility for classroom application. This R&D process not only produced a scientifically sound tool but also ensured its usability for teachers in real educational settings.

RESEARCH METHODS

This study employed a Research and Development (R&D) approach by adopting the Borg and Gall (1983) model, which was simplified into six stages to suit the scope, time constraints, and objectives of the research (Borg & Gall, 1983; Waruwu, 2024). The R&D approach was chosen because it provides a systematic and structured framework for developing educational products through continuous evaluation and refinement. This method is particularly appropriate for developing assessment instruments, as it allows researchers to ensure that the product meets the criteria of validity, reliability, practicality, and effectiveness before being implemented in real educational settings.

The first stage of the research was the preliminary study. This stage involved a comprehensive literature review and field observations aimed at identifying the need for a standardized assessment instrument in early childhood education (PAUD) institutions. The literature review focused on theories of social and emotional development in early childhood, existing assessment instruments, and best practices in social-emotional

evaluation. Field observations and interviews were conducted with early childhood teachers to gain insight into current assessment practices. The findings revealed that teachers primarily relied on informal and subjective observations and that no standardized instrument was available to specifically assess children's social and emotional skills. These findings highlighted the urgency of developing a structured and objective assessment tool. Based on the results of the preliminary study, the second stage involved product design. At this stage, an initial draft of the assessment instrument was developed. The draft consisted of 20 items designed to measure key domains of social and emotional development, including cooperation, empathy, emotional regulation, self-control, and respect for others. These domains were selected based on established theories of child development and indicators commonly used in early childhood education. The instrument was structured as an observation checklist to facilitate ease of use by teachers during classroom activities. Four rating levels were employed, namely BB (Not Yet Developed), MB (Beginning to Develop), BSH (Developing as Expected), and BSB (Very Well Developed). This scale was chosen to align with assessment practices commonly used in PAUD institutions and to allow teachers to categorize children's development more accurately.

The third stage was expert validation. The draft instrument was reviewed by three experts with different areas of expertise, namely content, language, and media experts. The content expert evaluated the relevance and suitability of each item in measuring social and emotional skills, while the language expert assessed clarity, readability, and appropriateness of the wording for early childhood contexts. The media expert reviewed the layout, format, and overall practicality of the instrument for classroom use. The experts provided detailed feedback and suggestions aimed at improving the precision, clarity, and applicability of the instrument. Their evaluations ensured that the instrument was theoretically sound and practically feasible.

Following expert validation, the fourth stage involved design revision. Revisions were made based on the feedback provided by the experts. This process included simplifying complex wording, refining behavioral indicators to make them more observable, and ensuring consistency across items. The revisions also aimed to ensure that each item accurately reflected observable behaviors relevant to children aged 5–6 years. After revision, the instrument was reviewed again by the research team to confirm that it was ready for field testing.

The fifth stage was the product trial. The revised instrument was tested in an early childhood education institution involving 10 children aged 5–6 years. During this stage, teachers observed the children's behavior during daily learning activities and completed the assessment instrument based on their observations. The trial aimed to examine how well the instrument functioned in real classroom conditions and to collect data for psychometric analysis. Teachers were also encouraged to provide feedback regarding the clarity of the items, ease of use, and overall practicality of the instrument.

The sixth stage focused on data analysis and final product refinement. The data collected during the product trial were analyzed to determine the validity, reliability, practicality, and effectiveness of the instrument. Validity was analyzed using the Pearson Product Moment correlation to identify items that met the minimum correlation criteria. Reliability was measured using Cronbach's Alpha to assess the internal consistency of the instrument. Practicality was evaluated through teacher questionnaires that measured ease of use, clarity, and suitability for classroom implementation. Effectiveness was assessed

based on teachers' responses regarding the usefulness of the instrument in monitoring children's social and emotional development.

Based on the results of testing and analysis, the final version of the instrument retained 18 valid items, while two items were excluded due to low correlation values. Overall, the final product met the criteria of validity, reliability, practicality, and effectiveness, making it suitable for use as an assessment instrument for social and emotional skills in early childhood education settings.

RESULT AND DISCUSSION

The development of this assessment instrument addresses a critical gap in early childhood education, particularly in the area of evaluating children's social and emotional skills. Existing assessment tools in Indonesian early childhood education (PAUD) often emphasize cognitive and motor development, while the social-emotional domain remains underexplored. This study contributes by providing a validated and reliable tool that allows teachers to systematically measure these important aspects of child development (Hurlock, 2011; Santrock, 2020).

The instrument's validity results demonstrate that 18 of the initial 20 items were statistically significant, confirming their ability to accurately measure the intended constructs. These items cover essential domains such as cooperation, empathy, emotional regulation, and respect for others—dimensions that align with major developmental theories like Erikson's psychosocial stages and Vygotsky's sociocultural approach. The removal of two invalid items (items 9 and 13) further refined the tool, ensuring each item contributed meaningfully to the overall construct (Solihah et al., 2020).

The reliability analysis, with a Cronbach's Alpha coefficient of 0.915, indicates a very high level of internal consistency. This suggests that the instrument consistently measures the same underlying dimensions across different respondents and situations (Ananto & Vinayastri, 2021). Such reliability is crucial for ensuring that assessment results are dependable and can be replicated across various educational contexts. The result aligns with previous studies that emphasize the importance of psychometric robustness in early childhood assessment tools.

3.1 Result

The findings on practicality revealed that teachers found the instrument easy to use within the classroom context. The average practicality score of 88% reflects the teachers' positive perception regarding the clarity of items, ease of observation, and the minimal disruption caused to daily learning activities. In line with Ananto and Vinayastri (2021), this highlights the need for user-friendly tools that support educators rather than burden them with additional administrative tasks (Ananto and Vinayastri, 2021).

From the perspective of effectiveness, the instrument received over 85% positive feedback from teachers who applied it during observation. Teachers reported that the tool enabled them to identify children's social and emotional progress more systematically, revealing patterns of behavior that might have been overlooked in informal assessments. This indicates that the instrument not only has theoretical soundness but also practical relevance in supporting evidence-based teaching practices.

Beyond its immediate utility, the development of this instrument promotes a broader understanding of how social and emotional competencies can be integrated into early learning assessment frameworks. By aligning observation-based assessments with structured developmental indicators, educators can better support holistic child

development. This integration ensures that social-emotional learning is recognized as a core dimension of early education rather than a supplementary one.

The study also reinforces the importance of balancing scientific rigor and classroom practicality in educational assessment design. Instruments that are too theoretical may be difficult to apply, while overly simplistic tools risk lacking validity. By combining psychometric strength with ease of use, this research offers a model for future instrument development in the early childhood education field.

In conclusion, the developed instrument has proven to be valid, reliable, practical, and effective, making it a valuable resource for early childhood teachers. It enables systematic, objective, and continuous evaluation of children's social and emotional development, supporting educators in making informed pedagogical decisions. Furthermore, its successful implementation at TK Ratna Kusuma demonstrates its potential for wider adoption in PAUD institutions across Indonesia, contributing to the enhancement of quality early childhood education.

The validity of the instrument was analyzed using the Pearson Product Moment correlation. The results showed that 18 out of 20 items were valid, as their correlation coefficients exceeded the *r*-table value at the 5% significance level. Meanwhile, two items, namely items 9 and 13, were found to be invalid because their *r*-count values were lower than the *r*-table value and were therefore removed from the instrument. These results indicate that the majority of the instrument items were able to accurately measure the intended constructs. This finding is consistent with previous research by Solihah et al. (2020), which emphasized the importance of empirical validity testing to refine and strengthen assessment instruments.

Based on the validity test results presented in Table 1, item 1 shows a correlation coefficient (*r*-count) of 0.821, which exceeds the *r*-table value of 0.602 at the 5% significance level ($N = 11$), and is therefore classified as valid. In contrast, item 9 obtained an *r*-count value of 0.489, which is lower than the *r*-table value, and was thus considered invalid. Similarly, item 13 was also found to be invalid, as its *r*-count value of 0.515 did not meet the required criterion compared to the *r*-table value. These findings indicate that not all instrument items satisfied the validity requirements, and the invalid items needed to be eliminated to ensure that the instrument accurately measures the intended constructs.

The reliability of the instrument was tested using Cronbach's Alpha, resulting in a coefficient of 0.915. According to Guilford's criteria, this value is categorized as very high, indicating excellent internal consistency. This result demonstrates that the instrument is reliable and produces consistent measurements when applied across different subjects and assessment contexts.

The practicality of the instrument was evaluated through a questionnaire administered to teachers as users of the instrument. The findings showed an average practicality score of 88%, which falls into the category of very practical. Teachers reported that the instrument was easy to implement in classroom settings, the assessment indicators were clear, and its use did not interfere with teaching and learning activities. These findings align with Ananto and Vinayastri (2021), who highlighted that teacher-friendly assessment tools are more likely to be effectively implemented in early childhood education environments.

The effectiveness of the instrument was determined based on teachers' responses after using it during classroom observations. The results revealed that more than 85% of teachers provided positive feedback, indicating that the instrument was effective in practice. Teachers stated that the instrument helped them systematically monitor children's social and emotional development and provided insights into behavioral patterns that had previously gone unnoticed through informal assessment methods.

3.2 Discussion

The development of this instrument bridges a crucial gap in early childhood assessment practices by providing a tool with strong psychometric robustness and practical applicability. Its high levels of validity and reliability ensure accurate and consistent measurement, while its demonstrated practicality and effectiveness highlight its suitability for real classroom settings. This study emphasizes the importance of balancing scientific rigor with practical usability in the development of early childhood assessment tools, ensuring that instruments are not only theoretically sound but also feasible for everyday educational practice (Sumantri, 2022).

1. CONCLUSION

This study successfully developed an instrument to assess the social and emotional skills of children aged 5–6 years, meeting four key criteria:

The validity test results indicate that 18 items were declared valid and effectively measure key aspects such as cooperation, empathy, emotional regulation, and respect for others. This finding demonstrates that each item accurately represents indicators of children's social and emotional development. The reliability analysis produced a Cronbach's Alpha coefficient of 0.915, which is categorized as very high. This result indicates excellent internal consistency, suggesting that the instrument yields stable and reliable results when used repeatedly in different situations. In terms of practicality, teachers reported that the instrument was easy to use and did not disrupt classroom activities. The simple format and clear indicators enabled teachers to observe and assess children's social and emotional behaviors efficiently during learning activities. Furthermore, the effectiveness of the instrument was shown by more than 85% positive responses from teachers. Teachers stated that the instrument helped them monitor children's social and emotional development more systematically and objectively, making it a valuable tool for supporting instructional decision-making in early childhood education.

The final instrument is deemed feasible for implementation in early childhood education (PAUD) institutions and can assist teachers in conducting systematic, objective, and continuous assessments of children's social and emotional development (Hurlock, 2011; Santrock, 2020).

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3. REFERENCES

- Ananto, M. C., & Vinayastri, A. (2021). Development of Emotional Intelligence Instruments for Early Childhood. *Golden Age Journal*, 6(2), 87–98.
- Agni Nur Solihah, Yoyoh Jubaedah, and Melly Sri Sulastri Rifa'i. (2020). "*Development of a Social-Emotional Development Measurement Instrument for Children Based on Home-Based Childcare.*"
- Artha Mahindra Diputera, Anita Yus, and Debby Selviana Waruwu. "*Assessment of Social and Emotional Development of Children Aged 5–6 Years at Immanuel Kids Kindergarten.*" n.d.
- Azizah Badik Atusholichah, Rifa Suci Wulandari, and Lusy Novitasari. (2022). "Developing Early Childhood Social and Emotional Skills Through Traditional Games."
- Borg, W. R., & Gall, M. D. (1983). *Educational Research: An Introduction*. New York: Longman.
- Conita Ananto and Vinayastri. "*Development of an Emotional Intelligence Instrument for Early Childhood.*"
- Hurlock, E. B. (2011). *Perkembangan anak jilid 1* (Terj. Meitasari Tjandrasa & Muslichah Zarkasih). Jakarta: Erlangga.
- Sari, Intan Noviata, Baiq Shofa Ilhami, and Rabihatun Adawiyah. "*Development of a Command Board Media for Social-Emotional Development of Early Childhood Aged 5–6 Years at TK Bunga Melati NW Presak Sakra.*" n.d.
- Mohamad Syarif Sumantri. *Character Education Development in Elementary Schools* (1st ed.). Surabaya: CV. Jakad Media Publishing, 2022, p. 18.
- Solihah, A. N., Jubaedah, Y., & Rifa'i, M. S. S. (2020). Development of Social-Emotional Assessment Instruments for Early Childhood.
- Sugiyono. (2018). *Quantitative, Qualitative, and R&D Research Methods*. Bandung: Alfabeta.
- Santrock, J. W. (2020). *Life-Span Development* (18th ed.). New York: McGraw-Hill Education.
- Waruwu, Marinu. (2024). "Research and Development (R&D) Method: Concepts, Types, Stages, and Advantages." *Jurnal Ilmiah Profesi Pendidikan*, 9(2), 1220–1230. <https://doi.org/10.29303/jipp.v9i2.2141>