



“KATAKITA” PLATFORM PLANNER FOR LANGUAGE DEVELOPMENT STIMULATION IN CHILDREN AGED 0–6 YEARS

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Abstract

Language development in children aged 0–6 years is a crucial stage that forms the foundation for communication, thinking, and social interaction. At this stage, children require consistent, targeted, and age-appropriate stimulation to support optimal language growth. However, many teachers and parents experience difficulties in designing engaging and effective language stimulation activities, particularly for children with language development delays. In addition, there is still a lack of specialized digital platforms that assist educators in planning language stimulation activities for young children. Based on these challenges, this research aimed to develop *katakita*, a website-based stimulation planner for children’s language development aged 0–6 years. The platform was designed to help teachers create, organize, and implement language stimulation activities more effectively and efficiently. *Katakita* provides several features, including a language stimulation planner, educational articles, and a communication feature called “Ngobrol Yuk”. This study applied the Research and Development (R&D) method using the ADDIE model, which consists of analysis, design, development, implementation, and evaluation stages. The small-scale trial involved 5 teachers, while the large-scale trial involved 15 teachers. Data were collected through questionnaires and analyzed using qualitative and quantitative techniques. Qualitative data were obtained from critiques and suggestions for product improvement, while quantitative data were analyzed using percentage-based validation results. The results showed that *Katakita* achieved very high validation scores. Media expert validation reached 93%, content expert validation reached 93%, and user expert validation reached 96%. In addition, the small-group and large-group trials obtained scores of 95.20% and 89.60%, respectively. These findings indicate that *Katakita* is highly suitable as a digital planning platform for stimulating language development in children aged 0–6 years.

Keywords: child language development, digital platforms, stimulation

INTRODUCTION

Language development is a crucial aspect of a child’s growth and development, serving as the foundation for their communication, thinking, and social interaction skills. According to a WHO report on Southeast Asia, Indonesia ranks second in terms of the highest prevalence of developmental and growth disorders, at 28.7% (WHO et al., 2025). According to the WHO and UNICEF Global Report on Children with Developmental Disabilities, approximately 7.5% of children under the age of 5 experience conditions that contribute to developmental delays, including language and communication disorders (WHO & UNICEF, 2023). These data highlight the need for intervention regarding children’s language development delays.

A language delay means that a child’s language skills are developing more slowly than expected for their age. A Study by Hawa and Spanoudis (Aurellia et al., 2024) indicates that 40% to 60% of preschoolers with language delays experience difficulties later on in the process of learning written language. According to Friantary (Solekah et al., 2025), 74.5% of children aged 3–5 years experience language delays such as omitting letters in words, mispronunciation, and speech disorders caused by emotional and mental disorders. Aurellia’s study findings reveal that internal factors contributing to language development delays in children include biological conditions, nervous system maturity, and specific developmental disorders (Aurellia et al., 2024). External factors causing delays in children’s language development include a lack of verbal interaction, unresponsive parenting styles, limited

parental time, and unsupervised screen time (Sari et al., 2024). The stimulation children receive significantly influences their language development, including preventing delays in language development.

In schools, teachers have an important role in providing stimulation to children. Through meaningful learning activities, teachers serve as planners, facilitators, and implementers of stimulation (Astuti et al., 2025). However, in the fact, not all teachers have systematic and structured guidelines or plans for language development stimulation (Aulia & Budiningsih, 2021). Despite technological advancements, there is still no digital platform available that focuses on planning language development stimulation for children.

The analysis stage, conducted in September and October 2025 in Malang and Bondowoso Regencies, aimed to determine the extent of teachers' understanding and implementation of language development stimulation for children in early childhood education institutions. According to the survey results, 15 out of 22 teachers demonstrated knowledge and understanding of children's language development. However, these 15 teachers often felt confused when planning a variety of language stimulation activities for children.

Based on these problems, the development of *Katakita* as a website-based digital education platform that provides a planner for stimulating the language development of children aged 0 months to 6 years can serve as an appropriate innovative solution. The novelty of this study is that *Katakita* focuses on the language development of children aged 0 months to 6 years and takes the form of a website-based digital education platform that is easily accessible to both teachers and parents. *Katakita* provides planners or schedules for children's stimulation activities categorized by age group, and includes language development milestones adapted from the theories of Elizabeth B. Hurlock, STPPA, and Permendikdasmen Number 10 of 2025. Thus, it facilitates teachers in designing learning activity plans. Language stimulation activities cover listening, speaking, pre-reading, and pre-writing. Additionally, *Katakita* features articles on child language development and "Ngobrol Yuk," an online consultation channel with child development experts.

This study aims to develop *Katakita*, a web-based digital education platform that meets the criteria of appeal, efficiency, and suitability as a digital planner for language development activities for children aged 0–6 years. It is hoped that this platform will assist teachers in planning language stimulation activities appropriate to each developmental stage, monitoring children's language development progress, and minimizing the risk of language development delays or disorders. Through a structured platform designed to meet children's needs, it is anticipated that the quality of language stimulation will improve, thereby supporting optimal early childhood development.

RESEARCH METHODS

This study uses a research and development approach (R&D) based on the ADDIE model. The ADDIE model provides a structured process that is well-suited for research aimed at developing a product. According to (Branch, 2009), the ADDIE model consists of five phases: analyze, design, development, implementation, and evaluation.

In the analysis stage, a needs analysis was conducted to serve as the baseline for designing and developing *Katakita*. Data was collected through surveys of early childhood education (PAUD) teachers in Malang and Bondowoso Regencies. The analysis of user characteristics focused on the characteristics of PAUD teachers as the primary users of the *Katakita* platform. The design stage involved the development of a *Katakita* prototype, which included UI/UX design and content selection. After designing *Katakita*, the researchers developed a more comprehensive version of the platform. Subsequently, a validation test was conducted involving subject matter experts in early childhood education, media experts in digital platform development, and user experts—namely professional early childhood education teachers. The validation test aimed to determine the feasibility percentage regarding content, media, and usability. If any shortcomings were identified during the validation test, further improvements were made to refine the product.

The implementation stage includes small-group and large-group tests. The test subjects in this study were early childhood education teachers, consisting of 5 teachers from KB-TK Dharma Bakti Bondowoso for the small-group test and 15 teachers from TKIT Mutiara Hati for the large-group test. The implementation stage was necessary to test the feasibility of using the *katakita* platform in a real-

world educational context. The evaluation phase is the final stage conducted to assess the product's feasibility. This evaluation process reviews and considers feedback from subject matter experts, media experts, and user experts, as well as the results of the trials, to comprehensively assess the feasibility of the *Katakita* platform.

The data collection method used in this study involved a questionnaire to obtain results for the validity test and pilot test of the *Katakita* platform. The questionnaire was designed based on indicators of the suitability of the stimulation planner materials and the web-based *Katakita* platform. The suitability of the planner materials was assessed in terms of language development milestones for children aged 0 months to 6 years. The suitability of the platform was assessed in terms of the *Katakita* platform's UI/UX design and content appropriateness.

This study employs quantitative data analysis and descriptive qualitative analysis. Quantitative data analysis was used to process the questionnaire results provided by experts and teachers during the product pilot testing phase. Qualitative data analysis was derived from the critiques and suggestions of content experts, media experts, and user experts. This data serves as the foundation for product improvements. Consequently, a suitable and high-quality product will be produced. After determining the percentage of each validity test and pilot test result, the next step is to establish feasibility criteria based on the following: a) 80%–100%, with the qualifications “very appealing,” “very efficient,” and “very flexible”; b) 60%–79%, with the qualifications “fairly appealing,” “fairly efficient,” and “fairly flexible”; c) 50%–59%, with the qualifications of less appealing, less efficient, and less flexible, d) 0%–49%, with the criteria of unappealing, inefficient, and inflexible (Akbar, 2013).

RESULTS AND FINDINGS

Based on the ADDIE model, the development of the *Katakita* platform went through five stages: analyze, design, development, implementation, and evaluation. It began with the analysis stage, which involved an initial survey of early childhood education teachers in Malang and Bondowoso Regencies. The survey results revealed that most teachers understood the importance of stimulating language development in children aged 0–6 years. However, quite a few teachers experienced difficulties in designing language stimulation activities that were varied, systematic, and appropriate for the children's developmental stages. These findings formed the basis for the development of *Katakita* as a website-based digital education platform that provides a structured language development stimulation planner.

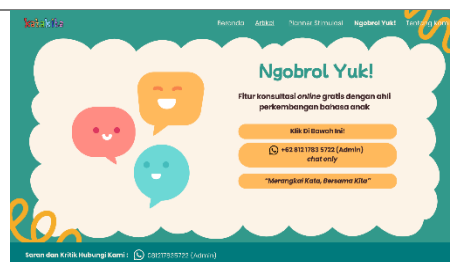
The second stage is design, in which the authors created an initial prototype of *Katakita* that included the user interface (UI) design, user experience (UX), website navigation system, planner design, and selection of educational content. The platform was designed to be accessible by many digital devices, such as smartphones, laptops, and computers. *Katakita* has several key features, including educational articles on children's language development, a weekly stimulation planner that can be downloaded by age group, and the “Ngobrol Yuk” online consultation feature. The stimulation planner includes language development milestones covering listening, speaking, pre-reading, and pre-writing skills. The design prototype of the *Katakita* platform is shown in Table 1.

Table 1. *Katakita* Prototype Design

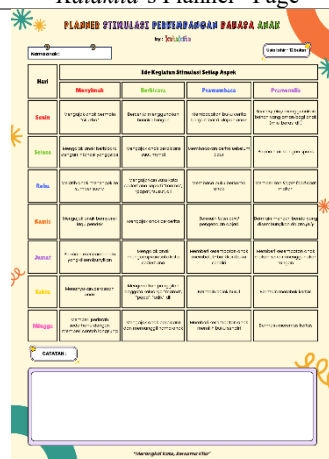
<i>Katakita</i> Prototype Design	
	
“Home” page	“About <i>Katakita</i> ” Page



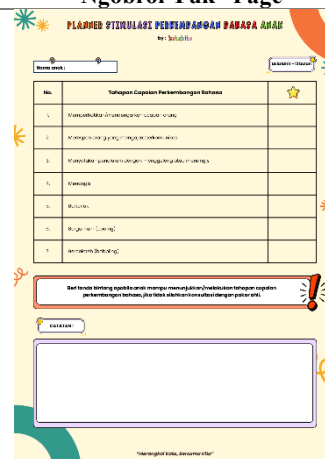
“Katakita’s Planner” Page



“Ngobrol Yuk” Page



A planner display has been downloaded according to the child's age group (page 1)



A planner display has been downloaded according to the child's age group (page 2)

The development stage includes an expert validation process to assess the product's suitability before implementation. The validation process involves subject matter experts, media experts, and user experts. The subject matter experts' assessment focuses on the appropriateness of language development content, stimulation activities, and language development indicators for children aged 0–6 years. The media experts' assessment focuses on the platform's interface design, accessibility, navigation, and visual presentation. Meanwhile, the user expert assessment evaluates the platform's practicality, ease of use, and efficiency for teachers.

Table 2. Results of the *Katakita* Validity Test

Validator	V1	V2	Tse	Tsh	Percentage	Qualification
Subject matter expert	43	50	93	100	93%	Highly Feasible
Media expert	47	46	93	100	93%	Highly Feasible
User expert	50	46	96	100	96%	Highly Feasible

Description:

V1 : Validator 1

V2 : Validator 2

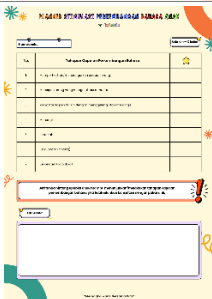
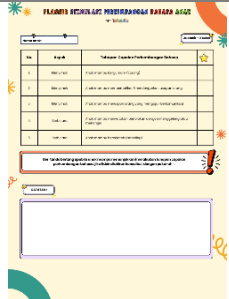
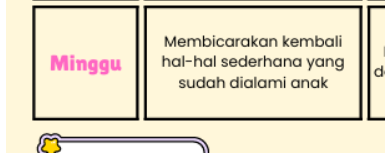
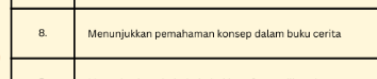
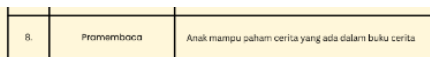
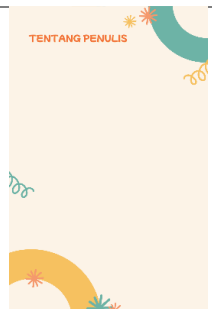
Tse : Total skor empiris (*total empirical score*)

Tsh : Total skor harapan (*total expected score*)

The validation results in Table 2 show that the *Katakita* platform received very high scores from all validators. The content expert validation achieved a score of 93%, indicating that the stimulation activities in the planner and the developmental indicators presented align with the stages of children's language development. *Katakita* features an attractive interface design, good accessibility, and efficient navigation, which aligns with the results of the media expert validation, which achieved a 93% score. Additionally, the user expert validation achieved the highest score of 96%, indicating that the platform is practical, easy to use, and assists teachers in designing language stimulation activities.

Some of the validators' feedback and suggestions served as the basis for product improvements before entering the implementation phase. The improvements included enhancing the visual consistency of the interface, simplifying navigation features, refining the instructions for language stimulation activities, and adding more detailed explanations to the user manual. These improvements were aimed at enhancing user experience and optimizing the functionality of the *Katakita* platform. The revisions to the *katakita* can be seen in Table 3.

Table 3. Katakita Revisions by Experts
Feedback by Experts

No.	Before	Feedback by Experts	After
1.		Replace the human elements with elements in an illustrated or cartoon style.	
2.		Replace the human elements with elements in an illustrated or cartoon style.	
3.		Add the standards referenced.	
4.		Add details for each developmental aspect indicator (listening, speaking, pre-reading, pre-writing).	
5.		For the 2–3-year-old and 4–5-year-old planners, the reflective sentences can be supplemented with sentences that are generally easy for parents to understand.	
6.		In the planner for 5- to 6-year-olds, CP No. 8. Revise the language used so that it is easy for parents or teachers to understand.	
7.		Add profile developer	

The next stage is implementation, which includes small-group and large-group pilot tests. The small-group pilot test involved 5 teachers from KB-TK Dharma Bakti Bondowoso, while the large-group pilot test involved 15 teachers from TKIT Mutiara Hati. The pilot tests were conducted to determine the suitability of *katakita* in terms of appeal, efficiency, and appropriateness within the context of actual learning.

Table 4. Results of the Small-Group Test

Aspect	Tse	Tsh	Percentage	Qualification
Attractiveness	73	75	97,33%	Highly Feasible
Suitability	93	100	93,00%	Highly Feasible
Efficiency	72	75	96,00%	Highly Feasible
Total/Average	238	250	95,20%	Highly Feasible

Description:

Tse : Total skor empiris (*total empirical score*)

Tsh : Total skor harapan (*total expected score*)

The small-group test achieved a response percentage of 95.20%, indicating that teachers found *Katakita* to be highly engaging, accessible, and suitable for assisting with language stimulation planning. Teachers reported that the planner's features helped them organize learning activities more efficiently and systematically. Additionally, the stimulation activities available in the planner were deemed varied, practical, and easy to implement in the classroom.

Table 5. Results of the Large-Group Test

Aspect	Tse	Tsh	Percentage	Qualification
Attractiveness	199	225	88,44%	Highly Feasible
Suitability	271	300	90,33%	Highly Feasible
Efficiency	202	225	89,78%	Highly Feasible
Total/Average	672	750	89,60%	Highly Feasible

Description:

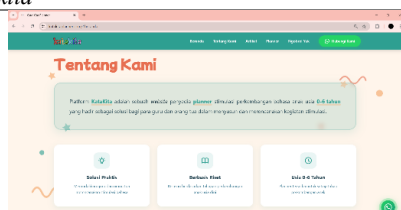
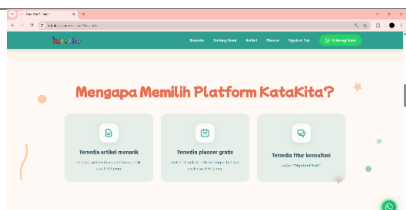
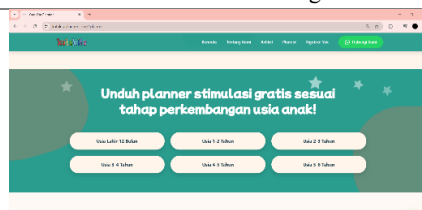
Tse : Total skor empiris (*total empirical score*)

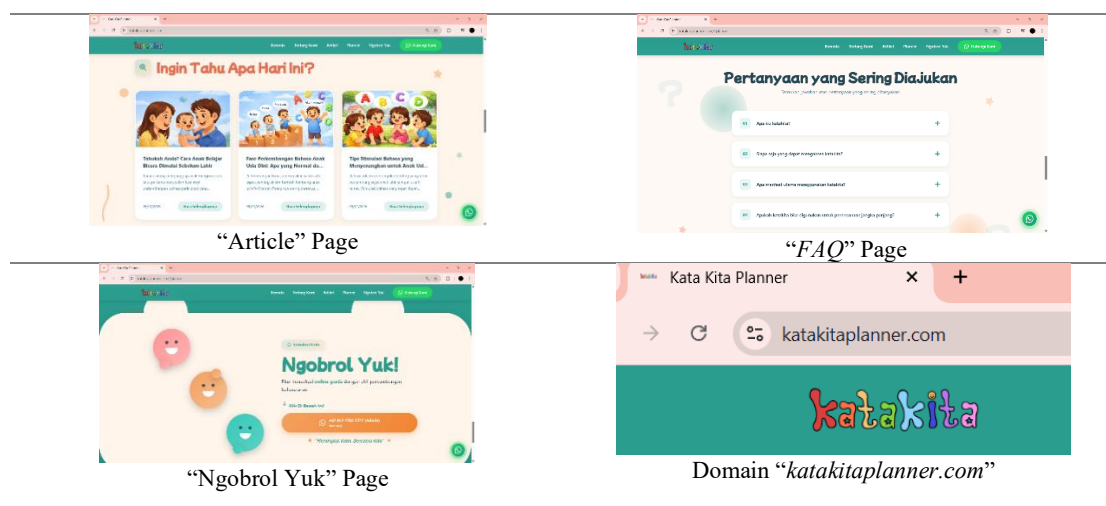
Tsh : Total skor harapan (*total expected score*)

The large-scale test achieved a success percentage of 89.60% and was classified as highly feasible. Teachers assessed that *Katakita* simplifies the process of selecting age-appropriate language stimulation activities and enhances teachers' creativity in designing learning activities. Additionally, the inclusion of language development indicators helps teachers monitor children's language development more efficiently.

Through the evaluation stage, encompassing the analyze, design, and development stages, as well as expert validation, small-group testing, and large-group testing—the results demonstrate that *Katakita* is highly suitable for use as a digital educational platform for planning language development stimulation for children aged 0–6 years. This platform not only provides practical support for teachers and parents but also contributes to improving the quality of language stimulation through structured, easily accessible, and developmentally appropriate learning plans. Thus, *Katakita* can serve as a digital media innovation that supports the optimization of early childhood language development in a more efficient, effective, and systematic manner. The final results of the *Katakita* platform development are presented in Table 6.

Table 6. Final Results of the *Katakita* Development

Final Result <i>Katakita</i>	
	
"Home" Page	"About <i>Katakita</i> " Page
	
" <i>Katakita</i> 's Advantage" Page	"Planner" Page



RESULTS AND DISCUSSION

The research findings indicate that *Katakita* is “highly feasible” as a digital platform for planning language development stimulation for children aged 0–6 years. The validation results from subject matter experts, media experts, and user experts show that *Katakita* successfully integrates educational content with digital technology design that is engaging, efficient, and user-friendly. These results align with the study by Mostefai et al., (2025), which states that a digital educational platform is considered suitable if it meets the criteria for content quality, user interface design, and user experience.

a) The suitability of the *Katakita*’s subject matter

Based on the results of evaluations from expert content validation, user expert validation, and testing, the stimulation activities included in the *Katakita* planner align with the language development characteristics of young children. *Katakita* designs stimulation activities based on listening, speaking, pre-reading, and pre-writing aspects tailored to children’s developmental stages. This supports Hurlock (1978) theory, which explains that language development occurs gradually, progressing from pre-linguistic communication to the use of more complex language structures. This also supports the assertion by Astuti and Yafie (2025) that providing structured, systematic, and age-appropriate stimulation can optimally support children’s language development. Therefore, the use of a developmentally appropriate stimulation planner can help children gain language experiences that meet their needs.

b) The suitability of *Katakita*’s media

Based on the validation results from media experts, user experts, and test results, *Katakita* was categorized as “highly feasible” in terms of media, covering aspects of UI/UX design and content quality. *Katakita* was assessed as having simple navigation, a responsive interface, and easily accessible digital features that support teachers in using the platform efficiently. These results are in line with Alqurni (2023) assertion that user interface design plays a crucial role in creating engaging and effective digital learning platforms. Additionally, *Katakita*’s accessibility via smartphones and laptops allows teachers and parents to use the platform flexibly, without being constrained by time or location. Teachers assessed that *Katakita* helps them design stimulation activities in a more structured manner and reduces the difficulty in determining variations in children’s language stimulation. These results reinforce the findings of Puslitjak (2020) that digital education platforms can enhance learning efficiency and support innovative educational practices. Furthermore, the availability of a downloadable planner feature makes it easier for teachers to immediately implement the pre-designed stimulation activities in their lessons.

c) Advantage and Disadvantage *Katakita*

In addition to *Katakita*’s suitability as a platform for planning language development stimulation for children aged 0–6 years, there are advantages and disadvantages to this platform. The advantages of *Katakita* include: 1) *Katakita* provides accurate and reliable language development content for children aged 0–6 years based on research findings; 2) It features a stimulation planner tailored to children’s

developmental stages, which helps teachers design stimulation activities and has been validated by early childhood development experts; 3) *Katakita* features a user-friendly UI/UX design, making it easy to use for both teachers and parents with diverse backgrounds, 4) *Katakita* supports continuity of stimulation between school and home, 5) *Katakita* provides an online consultation feature available to both teachers and parents, 6) *Katakita* can be used flexibly and efficiently in various learning contexts, allowing it to be tailored to user needs.

Some of the disadvantages of *Katakita*'s development include: 1) *Katakita* is intended only for children aged 0–6 years. 2) Using *Katakita* requires an internet connection, which can be a barrier for users with limited access to technology. 3) As an early-stage product, *Katakita* does not yet include all the advanced features needed, such as automatic developmental analysis or other more complex features.

In general, the development of *Katakita* contributes to innovation in early childhood education, particularly in planning language development stimulation for children aged 0 months to 6 years. This platform serves as a practical solution for teachers and parents who need structured and easily accessible guidance on stimulation. Additionally, *Katakita* supports the integration of digital technology into early childhood education practices, which is increasingly important in today's digital age.

CONCLUSION AND SUGGESTIONS

Conclusions

This research successfully developed *Katakita*, a planning platform designed to stimulate language development in children aged 0 months to 6 years. The results of the *Katakita* content feasibility test conducted by content experts, user experts, and test users indicate that the content on *Katakita* can be categorized as “highly engaging, highly efficient, and highly appropriate for children’s developmental stages.” The results of the *Katakita* media feasibility test by media experts, user experts, and pilot tests showed that the media display and user experience of *Katakita* were categorized as “highly feasible” in terms of UI/UX design and content suitability. Therefore, overall, *Katakita* falls into the “highly suitable” category in terms of appeal, efficiency, and suitability as a platform for planning language development stimulation for children aged 0 months to 6 years.

Suggestions

Based on all stages of the research and development of *Katakita*, there are certainly strengths and weaknesses of the product, which can be taken into consideration when developing a better product. This study is still limited to the product feasibility testing phase and has not yet directly tested the platform’s effectiveness in improving children’s language skills. Therefore, future research is recommended to conduct an effectiveness test regarding the impact of using *Katakita* on children’s receptive and expressive language development.

REFERENCES

- Akbar, S. (2013). *Instrumen Perangkat Pembelajaran*. PT Remaja Rosdakarya.
- Alqurni, J. (2023). Assessing the Usability of E-Learning Software Among University Students : A Study on Student Satisfaction and Performance. *Internal Journal of Information Technology and Web Engineering*, 18(1), 1–26. <https://doi.org/10.4018/IJITWE.329198>
- Astuti, W., & Yafie, E. (2025). A Systematic Literature Review On Language Development Strategies In Early Childhood Education : Effective Pedagogical Approaches. *Mimbar Pendidikan: Jurnal Indonesia Untuk Kajian Pendidikan*, 10(2), 126–138.
- Astuti, W., Yafie, E., Tirtaningsih, M. T., & Iriyanto, T. (2025). Beyond Cultural Values : Identifying Proximal Predictors of Early Literacy Skills in Indonesian Kindergarteners. *Jurnal Pendidikan Progresif*, 15(04), 2802–2824. <https://doi.org/10.23960/jpp.v15i4.pp2>
- Aulia, B. N. R., & Budiningsih, C. A. (2021). Tingkat Pemahaman Guru Taman Kanak-kanak di Lombok dalam Stimulasi Pengembangan Bahasa Anak Usia Dini. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 5(2), 2259–2268. <https://doi.org/10.31004/obsesi.v5i2.1082>
- Aurellia, B. W., Hapsari, A., & Ekawati, R. (2024). Hubungan Status Gizi Anak dan Pengetahuan Ibu Tentang Stimulasi Bahasa dengan Perkembangan Bahasa Anak di TK Aisyiyah Bustanul Athfal VI Kota Kediri. *Jurnal Anestesi: Jurnal Ilmu Kesehatan Dan Kedokteran*, 2(1), 13–25.

- Branch, R. M. (2009). *Instructional Design: The ADDIE Approach*. Springer.
- Hurlock, E. B. (1978). *Child Development Sixth Edition*. Terjemahan Meitasari Tjandrasa dan Muslichah Zarkasih. Penerbit Erlangga.
- Mostefai, B., Boutefara, T., Bousbia, N., Balla, A., & Dhelim, S. (2025). Enhancing User Experience in E-Learning Systems : A New User-Centric RESTful Web Services Approach. *Computers in Human Behavior Reports*, 18(100643), 1–21. <https://doi.org/10.1016/j.chbr.2025.100643>
- Puslitjak. (2020). *Platform Pembelajaran Digital dan Strategi Inklusivitas Pendidikan di Indonesia*. Pusat Penelitian Kebijakan, Badan Penelitian dan Pengembangan dan Perbukuan, Kementerian Pendidikan dan Kebudayaan.
- Sari, T. A. P., Novitawati, & Sulaiman. (2024). Pengaruh Interaksi Orang Tua: Screen Time terhadap Kemampuan Sosial Emosional dan Berbicara Anak Taman Kanak-Kanak. *Journal of Education Research*, 5(3), 3525–3535.
- Solekah, K. N., Dewi, R., Rahmawati, E., & Hamid, S. A. (2025). ANALISIS FAKTOR GANGGUAN KETERLAMBATAN BERBICARA (SPEECH DELAY) PADA ANAK 5 TAHUN DI PAUD KB AZ-ZAHRA KECAMATAN MUARA TELANG KABUPATEN BANYUASIN TAHUN. *Jurnal Kesehatan Tambusai*, 6(1), 907–914.
- WHO, & UNICEF. (2023). *Global Report on Children with Developmental Disabilities: from the margins to the mainstream*. UNICEF.
- WHO, UNICEF, & Bank Group, W. (2025). *Levels and trends in child malnutrition*. <https://data.unicef.org/resources/jme-report-2021/>.