

Application Of Interactive Learning Media Based On Smart Television Word Wall Application To Improve Alphabet Recognition In Children Aged 4-5 Years At Alkhuzamy Kindergarten In The 2025/2026 Academic Year

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Abstract

This study aims to improve alphabet recognition in children aged 4-5 years through the application of interactive learning media based on smart television with the Word Wall application at TK AlKhuzamy in the 2025/2026 academic year. The low ability of children's alphabet recognition became the background of this study, where out of 19 children, only 26.3% achieved completeness in the initial condition. The research used the Classroom Action Research (CAR) method with the Kemmis & McTaggart model, conducted in two cycles, each consisting of planning, implementation, observation, and reflection. The research subjects were 19 children aged 4-5 years at TK AlKhuzamy. Data collection techniques used observation, interviews, and documentation. The results showed significant improvement in each cycle. In the pre-cycle, classical mastery only reached 26.3% (5 children completed), increased to 73.6% (14 children completed) in cycle I, and reached 84.2% (16 children completed) in cycle II. All indicators of alphabet recognition improved, with the indicator of recognizing the first letter of their own name reaching 100% and the ability to distinguish similar letters (b/d, p/q) increasing from 45% to 89%. There were no children in the "Beginning to Develop" (MB) category after cycle II. Thus, the action hypothesis is accepted that the application of interactive learning media based on smart television with the Word Wall application is effective in improving alphabet recognition in children aged 4-5 years.

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1. INTRODUCTION

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual religious strength, self-control, personality, intelligence, noble morals, and skills needed by themselves and society. Simply put, education can be defined as a learning process for students to be able to understand, comprehend, and make humans more critical in thinking (Pay, 2023: 28). The quality of education determines the progress of competent and innovative human resources (Satria et al., 2025: 292). However, one of the factors causing the low quality of education is facilities, infrastructure, an irrelevant curriculum, and the use of media that is still conventional (Satria et al., 2025: 293).

Early childhood education is the primary foundation for developing quality human resources. During the golden age, children experience rapid growth and development, including language

development (Fathonah et al., 2024: 22). One of the basic skills that must be developed in early childhood is alphabet recognition as a gateway to early literacy skills (Fathonah et al., 2024: 36). Alphabet recognition is crucial for children to recognize letters in preparation for reading and writing (Laili, 2014: 2). Based on constructivist theory, learning is generative, namely the act of creating meaning from what is learned through cognitive structures based on experience (Zulkarnain et al., 2021: 72).

According to Lev Vygotsky's Zone of Proximal Development (ZPD) theory, social interaction and guidance from adults or more capable peers (scaffolding) are crucial for early childhood literacy (Sornoza & Rebollar, 2018: 38). In this digital era, the world of education is required to adapt and innovate to create interactive and engaging learning processes for the digital native generation (Nursarofah et al., 2024: 79). Interactive learning involves a two-way process between teachers, students, and learning media (Wahab, 2016: 179). One innovation that can be used is the use of Smart Television and Word Wall applications (Halizah, 2025: 17; Rohmah & Waluyo, 2025: 93).

It is important to position the novelty of this study relative to these prior applications of Smart Television and Word Wall. Halizah (2025) applied Smart TV-based media to Arabic language learning at the secondary level, while Rohmah and Waluyo (2025) applied a Word Wall-based program to numeracy skills in children aged 5–6 years. To date, no identified study has combined Smart Television and Word Wall specifically to target alphabet recognition in children aged 4–5 years through a systematic two-cycle Classroom Action Research design. The novelty of the present study therefore lies in this specific combination of media, age group, literacy sub-skill, and research design, which has not been jointly examined in the studies reviewed, thereby extending the application of Smart Television and Word Wall from other domains (language, numeracy) into the specific area of early alphabet recognition.

Based on the results of initial observations at Al-Khuzamy Kindergarten for children aged 4–5 years, it was found that children's alphabet recognition abilities were still low. Children still had difficulty recognizing, distinguishing, and naming the alphabet as a whole. This was because the learning media used by teachers were still conventional, such as whiteboards and children's worksheets (Nurhalimah, 2025). Therefore, this study aims to test the extent to which the application of interactive learning media based on Smart Television with the Word Wall application is effective in improving alphabet recognition in children aged 4–5 years at Al-Khuzamy Kindergarten in the 2025/2026 Academic Year.

2. METHOD

This study uses Classroom Action Research (CAR), which is research conducted in the classroom to solve learning problems faced by teachers, improve the quality and results of learning, and try new things in learning in order to improve the quality and results of learning (Widayati, 2008: 88–89). The study was conducted in the even semester of the 2025/2026 academic year at AlKhuzamy Kindergarten located in Bentek Hamlet, Menggala Village, Pemenang District, North Lombok, with the subjects of this study being children aged 4–5 years old in class A at Al-Khuzamy Kindergarten with a total of 19 students (11 boys and 8 girls).

The classroom action research procedure is carried out in a continuous cyclical activity, consisting of two cycles, each cycle consisting of four main activities: planning, acting, observing, and reflecting (Susilowati, 2018: 170). Meanwhile, the data collection techniques used were observation, interviews, and documentation. The observation instrument used was a structured checklist rubric developed from six alphabet recognition indicators (naming letters, distinguishing similar-shaped letters, matching uppercase and lowercase letters, recognizing the first letter of one's own name, ordering letters, and associating letters with objects), each scored on a four-point scale corresponding to the MB, BSH, and BSB developmental categories used in this study. The content

validity of this observation rubric was established through expert judgment, in which the instrument was reviewed by early childhood education lecturers to confirm that each indicator appropriately represented the construct of alphabet recognition for children aged 4–5 years and was aligned with the relevant early childhood learning outcome standards, with revisions made based on the experts' feedback prior to use in the field. Interviews with the classroom teacher and documentation (photographs and children's work samples) were used as complementary data to triangulate and support the interpretation of the observation scores. Data analysis in this study was carried out by calculating individual and class learning completion:

1. Individual completion

$$THAT = \frac{NS}{SMI} \times 100$$

Information:

NA = Final Grade

NS = Earnings Score

SM = Maximum Score

2. Classical completion

$$3. KK = \frac{N}{JS} \times 100\%$$

$$KK = (NS/JS) \times 100\%$$

Information:

KK = Classical Completion

N = Number of Students Who Completed

JS = Total Number of Students

The indicators of success of this research are classical completion reaching $\geq 80\%$ and all children at least reaching the Developing According to Expectations (BSH) category.

3. RESULTS AND DISCUSSION

A. Research result

1) Description of Initial Conditions (Pre-Cycle)

Before the intervention, researchers conducted a pre-cycle to assess the children's initial alphabet recognition skills. Of the 19 children, only 5 (26.3%) achieved completion in the BSH (Developing as Expected) category, while the remaining 14 (73.7%) remained in the MB (Starting to Develop) category. The average score was still below 65.

Based on data from observations of the ability to recognize the alphabet in children aged 4-5 years of 19 children at AlKhuzamy Kindergarten, before the implementation of interactive learning media based on...*smart television via the application Word Wall*, it was found that children's alphabet recognition abilities showed varying improvements, but in general, further support was still needed. Of the total 19 students, only 5 people (26.3%) were stated as Completed by category BSH (Developing as Expected), while the remaining 14 people (73.7%) were still in the category MB (Start) Develop).

2) Cycle I

Based on the observation results, there was a significant increase in children's ability to recognize the alphabet after 3 meetings of the media application of *Word Wall*. The following are details of individual achievements:

- a) BSB (Developing Very Well): 4 people (*Aisya, Cece, Ergin, Fairel*) with a final score of 27–28 (84.3%–87.5%). They were able to name >10 letters, distinguish similar letters, correctly order A–L, and associate letters with objects independently.
- b) BSH (Developing According to Expectations): 10 People (*Suari, Inara, Kinara, Sajida, Via, Zakwan, Natan, Azwan, Adam, Arsyia, Fadil, Jimi, Naji, Sapphire*) with a final score of 22–

25 (68.7%–78.1%). They were able to name 5–10 letters, match uppercase and lowercase letters with light assistance, and indicate the first letter of their own name. MB (Starting to Develop): 1 person with a final score of 20 (62.5%). Alfi still had difficulty distinguishing similar letters and ordering letters verbally despite receiving assistance.

After the implementation of interactive learning media based on the smart television Word Wall application for 3 meetings (May 26–28, 2026) with the theme "Myself" sub-theme "My Needs", there was a significant increase. Classical completion increased from 26.3% to 73.6% (an increase of 47.3%). The number of children who completed increased to 14 people, with details of 4 children achieving BSB (Very Good Development) and 10 children achieving BSH. Only 1 child (Alfi) is still in the MB category with a score of 62.5%.

3) Cycle II

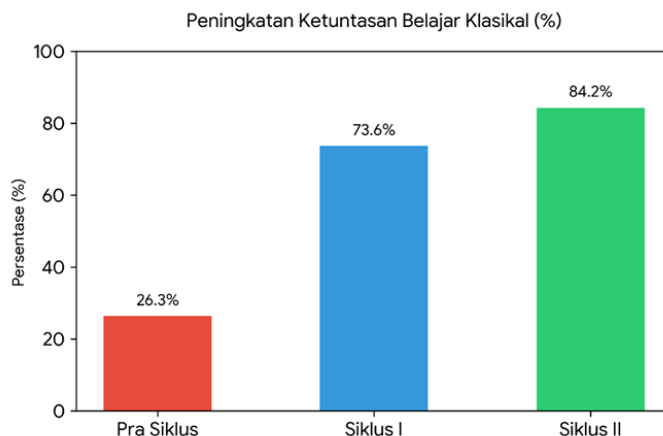
Based on the data from Cycle II, which was carried out on June 2–4, 2026, there was a very significant increase compared to the data in Cycle I. The following is a comparison of the results from pre-action to Cycle II:

- Alfi, who was still in the MB category in Cycle I (score 20, KI 62.5%) managed to improve to BSH (score 21, KI 65.6%) after receiving special assistance during Cycle II. Although the improvement was not drastic, Alfi managed to move out of the MB category.
- Adam was consistent in the BSH category with an increase from KI 68.7% to 86.7% (although the raw score was the same at 22, there was an increase due to the more complex indicator weights in Cycle II).
- A total of 11 children (57.9%) achieved the BSB category, a significant increase compared to Cycle I, which only had 4 children (21%).
- There were no more children in the MB (0%) category at the end of Cycle II.

Based on the reflection of Cycle I, the researcher made improvements in Cycle II, which was carried out for 3 meetings (June 2–4, 2026) with the theme "Myself" sub-theme "My Favorites". The improvements made included: modifying the Word Wall game with a focus on the letters b/d and p/q, dividing children into 3 small groups, special assistance for Alfi, and increasing the duration to 75 minutes per meeting.

As a result, classical completion increased to 84.2% (16 of 19 children completed), with 11 children achieving BSB and 5 children achieving BSH. Alfi, who was still MB in Cycle I, successfully advanced to BSH, and no children were still in the MB category (0%).

B. Inter-Cycle Discussion



Graph 1. Improvement in Alphabet Recognition Ability

Based on the recapitulation of the research results between cycles in Table 4 and Graph 4, which have been implemented in two cycles, there was a significant increase in the ability to

recognize the alphabet in children aged 4-5 years at AlKhuzamy Kindergarten after the implementation of interactive learning media based on smart television and the Word Wall application.

The data in Table 4 illustrate the improvement in student learning outcomes as measured through three stages, namely Pre-Cycle, Cycle I, and Cycle II. In the pre-cycle stage, student learning outcomes were still very low. Of all students, only 5 (26.3%) achieved the completion criteria (BSH/BSB). The remaining 14 students were still in the MB (Starting to Develop) category, indicating that most students had not yet mastered the material taught. In fact, not a single student (0%) was able to achieve the BSB (Very Well Developed) category.

After being given corrective actions in Cycle I, there was a very rapid increase. Classical completion jumped by +47.3%, so that the number of students who completed it became 14 people (73.6%). In this cycle, the quality of student achievement also began to be seen, marked by the emergence of 4 students who fell into the BSB category. Meanwhile, the number of students who were still in the MB category dropped drastically from 14 people to only 1 person. This shows that the intervention given in Cycle I was quite effective.

In Cycle II, there was another increase, although not as large as in Cycle I, which was +10.6%. Classical completion finally reached 84.2%, or 16 students completed. Although the number of students in the BSH category decreased (from 10 to 5), this was actually a positive indication because there was a shift in quality to a higher level, namely the number of students in the BSB category jumped rapidly to 11 people. The proudest achievement in this cycle was that there were no more students in the MB category (0 people), which means that all students had at least reached the expected minimum level.

Overall, these data demonstrate that the actions implemented in Cycles I and II successfully improved student learning outcomes gradually and sustainably. This is evident in the consistent increase in the percentage of classical completion (from 26.3% to 84.2%) and the improvement in the quality of student understanding, as indicated by the increase in the number of students in the BSB category and the decrease in students in the MB category at the end of the cycle.

This research aligns with Vygotsky's theory that children aged 4-5 years are in the zone of proximal development for various skills, particularly literacy. In Cycle I, many children still required teacher assistance (scaffolding) to operate smart televisions and answer games on the Word Wall. Over time, especially in Cycle II, children began to be able to operate media independently. Alfi, who was still MB in Cycle I, after receiving special assistance, successfully advanced to BSH in Cycle II. This proves that scaffolding provided by teachers is effective in helping children overcome their ZPD (Sornoza & Rebollar, 2018: 38-48).

These findings are also comparable to other classroom action research on alphabet recognition using different media. Fathonah et al. (2024: 22-36), using online-based letter cards for children aged 5–6 years, similarly reported a progressive increase in letter recognition ability across cycles, although the improvement in that study developed somewhat more gradually, which may reflect the relatively lower level of interactivity of static digital cards compared to the touch-based, game-like interaction offered by Word Wall on a smart television. Likewise, Nasution et al. (2024: 88-89), using a Pin Activity approach for kindergarten-aged children, found that hands-on manipulative activities improved letter recognition and supported cognitive development, reinforcing the broader finding that concrete, activity-based media outperform conventional textbook- or worksheet-based instruction for this age group. Compared to these studies, the classical completion achieved in the present study by the end of Cycle II (84.2%) is within a comparable range to outcomes reported in similar CAR-based interventions, suggesting that the specific combination of Smart Television and Word Wall used here is at least as effective

as other interactive or manipulative media previously tested for alphabet-related literacy skills, while offering the additional practical advantage of being usable with a whole class simultaneously via a single shared screen.

Furthermore, the Word Wall application, run on a smart television, is a concrete example of interactive learning media. Children don't just passively watch a program; they can tap the screen to select letters, drag objects to their correct locations, answer time-limited quizzes, and play matching pairs. The animation features, engaging colors, and interactive sound effects enhance children's enthusiasm and focus. The increase in completion rates from 26.3% to 84.2% demonstrates the effectiveness of interactive learning media (Munawir et al., 2024: 64).

The use of smart television in this study had a significant positive impact. The large smart television screen allowed all 19 children to see letters clearly from a distance. Children who previously got bored easily became very enthusiastic when the smart television was turned on and the Word Wall game began. This proves that smart television supports active learning and helps children with low concentration to focus more (Maulidah, et al., 2025: 12). Furthermore, this study used various Word Wall templates tailored to learning objectives, including: Matching Pairs to match uppercase letters with lowercase letters, Sorting to distinguish letters b/d and p/q, Quiz to associate letters with objects, and Maze Chase to sort letters. Children really enjoyed these games because they felt like playing a game, not learning. The scoring and timer feature also sparked healthy competitiveness among children (Jannah & Masnawati, 2024: 176-177). Therefore, this study adapted six indicators relevant to ages 4-5 years. The results of the study showed improvements in all indicators, with the greatest improvements in recognizing the first letter of one's own name (100% of children were able to) and matching uppercase and lowercase letters (a 65% increase). The most difficult indicators that required more practice were distinguishing similar letters (b/d, p/q) and ordering letters according to instructions, but both were significantly improved in Cycle II (Nasution et al., 2024: 88-89).

So overall, based on the classical completion of the pre-cycle, Cycle I, and Cycle II, the research results show that the application of interactive learning media based on...*smart television* application *Word Wall effectively improves* alphabet recognition ability in children aged 4-5 years at AlKhuzamy Kindergarten. This is evidenced by the increase in classical completeness from 26.3% (pre-cycle) to 73.6% (Cycle I) and finally reaching 84.2% (Cycle II). The results of this study are in line with and strengthen various theories that have been presented in Chapter II, including constructivism theory, Vygotsky's ZPD theory, interactive learning media theory, *smart television* application theory, *Word Wall*, as well as alphabet recognition indicators. Thus, the action hypothesis states that the application of interactive learning media based on the *smart television* application *Word Wall can* improve alphabet recognition in children aged 4-5 years at AlKhuzamy Kindergarten is accepted.

4. CONCLUSION

Based on the results of classroom action research carried out in two cycles at AlKhuzamy Kindergarten for children aged 4-5 years, it can be concluded that:

1. Implementation of interactive learning media based on the *smart television* application *Word Wall effectively improves* children's alphabet recognition skills. This is evidenced by an increase in classical learning completion from the initial condition of 26.3% (5 of 19 children completed), increasing to 73.6% in Cycle I (14 children completed), and reaching 84.2% in Cycle II (16 children completed).
2. All indicators of alphabet recognition experienced significant improvement, especially the indicators of recognizing the first letter of one's own name (100% of children were able to),

matching uppercase and lowercase letters (increased by 65%), and distinguishing letters that are similar in shape (b/d, p/q), which increased from 45% to 89% in Cycle II.

3. Media *Word Wall-based smart television* is able to create an active, interactive, and enjoyable learning environment. Children demonstrate high levels of enthusiasm, focus, and motivation to actively participate in the learning process.
4. There were no more children in the "Starting to Develop" (MB) category after Cycle II. All children achieved at least the "Developing as Expected" (BSH) category, with 11 children (57.9%) achieving the "Developing Very Well" (BSB) category.

Thus, the action hypothesis is accepted, that the application of interactive learning media based on a *smart television* application, *Word Wall* can improve alphabet recognition in children aged 4-5 years at AlKhuzamy Kindergarten in the 2025/2026 Academic Year.

Theoretically, these findings imply that constructivist and Vygotskian scaffolding principles remain applicable when instruction is mediated through interactive digital screens, extending prior evidence for these theories, which has largely come from unmediated, face-to-face teacher–child interaction, to a classroom setting supported by Smart Television and Word Wall technology. Practically, the findings imply that early childhood institutions with access to a single shared television screen, rather than one device per child, can still deliver individualized, game-based literacy practice at a whole-class level, offering a scalable alternative for kindergartens with limited technology budgets.

Based on these findings and implications, several practical suggestions are proposed. For teachers, it is recommended to integrate Smart Television and Word Wall activities into regular weekly literacy routines rather than using them only as a one-time intervention, and to continue providing individual scaffolding for children who progress more slowly, as was done for Alfi in this study, so that no child is left in the MB category by the end of a learning cycle. For kindergarten administrators, investment in a single shared Smart Television per classroom is suggested as a cost-effective way to support interactive literacy instruction without requiring one device per child. For future researchers, it is recommended to extend this research by testing the Word Wall and Smart Television combination on other early literacy or numeracy skills, by including a comparison group taught with conventional media to allow for a more direct effectiveness comparison, and by tracking children's alphabet recognition over a longer period to determine whether the gains achieved in this study are retained after the intervention ends.

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