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The Application of Wordwall Learning Media to Improve the Indonesian Language Learning Outcomes of Students with ADHD in Grade V of SDN 07 Sedoya

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Abstract: Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, impulsivity, and hyperactivity, which can interfere with academic performance and social interaction if not managed effectively. Students with ADHD often experience difficulties in maintaining focus and regulating their behavior during learning activities. Therefore, teachers need to employ appropriate learning media that can support students' self-regulation and inhibitory control. This classroom action research was conducted with four fifth-grade students at SDN 07 Sedoya who exhibited ADHD-related symptoms. Data were collected through tests, observations, and documentation, and analyzed using the Miles and Huberman model. After five learning cycles using Wordwall media, students showed measurable improvement in both attention regulation and academic outcomes. The findings revealed that the use of Wordwall media increased the average learning achievement of students with ADHD by 15% compared to the initial cycle, with 75% of them surpassing the minimum mastery criterion. Moreover, students demonstrated better inhibitory control, reduced impulsive behaviors, and improved persistence during learning tasks. These results indicate that interactive digital media such as Wordwall can effectively enhance self-regulation and learning performance among elementary students with ADHD.

Keywords: ADHD, Learning Media, Learning Outcomes, Wordwall

A. Introduction

Education is a cornerstone of national progress. Indeed, access to education is the right of every citizen, as stipulated in Law No. 20 of 2003. This means that everyone has the right to access education without discrimination, including students with special needs. Teachers, as the driving force of education, need to prioritise the principles of organised, democratic and fair education without any elements of discrimination (Sumiati, 2023). The existence of policies on educational equality provides new enthusiasm for children with special needs to achieve their dreams (Ningrum, 2022). Thus, there are no barriers for children with special needs to achieve the highest level of education.

Children with special needs are those who are different from the average child (Ningsih, 2024). Attention Deficit Hyperactivity Disorder (ADHD) is one type of special need commonly identified during school age (Wijaya et al., 2024). Globally, the prevalence of ADHD among school-age children ranges from 3–7%, with a 4:1 ratio between boys and

girls (Fithtiyah et al., 2024). The core difficulty faced by children with ADHD lies in inattention, hyperactivity, and impulsivity, which interfere with the learning process and social adjustment (Wijaya et al., 2024). Therefore, early and appropriate educational interventions are necessary to prevent more serious impacts in adulthood (Hayati & Apsari, 2019).

In the context of Indonesian language learning, inattention significantly affects students' vocabulary comprehension. ADHD students struggle to sustain focus during reading and vocabulary exercises, resulting in low understanding of text meaning and difficulty retaining new words. At SDN 07 Sedoya, for instance, more than 50% of students, including those with ADHD, scored below 60 in vocabulary-based reading comprehension tests. This indicates that vocabulary mastery in Indonesian remains a major challenge for students who require continuous cognitive stimulation.

Observation revealed that teachers still rely heavily on the lecture method, which demands prolonged concentration and provides minimal visual or interactive engagement. Several studies show that the lecture method is less effective for ADHD learners because it lacks dynamic feedback and fails to maintain attention over time (Nurfaidah et al., 2024; Yanti, 2015). During classroom implementation, ADHD students often display off-task behaviours asking irrelevant questions or playing with objects after only 10–15 minutes of instruction. This demonstrates the need for learning media that can sustain focus and provide continuous, multisensory stimulation.

Among technology-based learning tools, Wordwall offers unique potential for addressing the inattentive symptoms dominant in ADHD (approximately 75% of cases). Wordwall integrates gamification features such as points, rewards, and interactive challenges with visual and auditory stimuli, promoting active participation and reinforcing sustained attention (Imanulhaq & Pratowo, 2022; Fakhruddin et al., 2021). Unlike static media or conventional lectures, Wordwall's design encourages immediate feedback and repetitive engagement, aligning with the cognitive needs of ADHD students who benefit from short, visually stimulating tasks.

However, technology-based media application at SDN 07 Sedoya remains limited. Although the school possesses adequate digital infrastructure, teachers especially senior ones rarely integrate interactive tools beyond showing videos or images. This underutilisation of digital media reinforces the necessity of implementing gamified platforms like Wordwall to enhance learning outcomes, particularly in Indonesian vocabulary learning.

Recognising this gap, the present study aims to describe how the use of Wordwall media can improve Indonesian language learning outcomes among ADHD students in Grade V at SD Negeri 07 Sedoya. The findings are expected to contribute theoretically by highlighting gamification as a suitable pedagogical approach for ADHD learners and practically by guiding teachers in implementing inclusive, technology-assisted instruction for vocabulary comprehension improvement

B. Methods

This research is Classroom Action Research (CAR) conducted in five cycles, each consisting of one meeting. The decision to use five cycles is based on the consideration that behavioral and attention improvements in students with ADHD generally require repetitive reinforcement and gradual adaptation over a longer observation period. Previous studies have shown that fewer cycles (e.g., three or four) may not sufficiently capture consistent behavioral changes in students with attention disorders. Thus, five cycles were implemented to ensure the stabilization of learning outcomes and behavioral responses.

The subjects of this research were four fifth-grade students at SDN 07 Sedoya for the 2024/2025 academic year who were identified as having ADHD. Although the sample size is small, this is typical in Classroom Action Research (CAR), which prioritizes in-depth observation of classroom dynamics rather than generalization. The limited number of subjects is therefore acknowledged as one of the methodological limitations of this study.

The research was conducted in collaboration with the fifth-grade teacher at SDN 07 Sedoya. Data were collected using tests, observations, and documentation techniques. The Indonesian language test instrument used had been adapted for Children with Special Needs (ABK) to ensure its validity and reliability. Instrument validation was carried out through expert judgment involving a special education teacher and a linguist, while reliability was tested using internal consistency methods before the implementation phase.

The collected data were interpreted qualitatively using the Miles and Huberman approach. Student learning outcomes or achievements were calculated using the average score and percentage (%) with the following formula (H. Wijaya et al., 2023):

$$Niali\ rata - rata = \frac{Jumlah\ nilai\ total}{Banyak\ mahasiswa}$$

$$Persentase\ (\%) = \frac{Jumlah\ bagian}{Jumlah\ keseluruhan} x100\%$$

Figure 1. Calculation of Mean and Percentage of Achievement/Learning Outcomes

The benchmark of success was set at 75% of the student sample achieving an average score above the minimum threshold of 70. To illustrate learning progress, comparisons of learning outcomes across cycles were presented to show the trend of improvement throughout the intervention.

C. Results and Discussion

Classification of Students with ADHD

Children with ADHD show various behavioral and cognitive symptoms that determine their ADHD type. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association, 2013), ADHD is classified into three types:

Inattentive Type, Hyperactive-Impulsive Type, and Combined Type. This classification is consistent with the characteristics outlined by Putra (2022), although DSM-5 remains the primary clinical reference for validity.

Based on classroom observations, three students (GAH, RN, and VI) demonstrated inattentive behaviors, such as difficulty sustaining focus, frequent forgetfulness, carelessness, and incomplete task performance. These symptoms are consistent with the inattentive type of ADHD. Another student, HS, displayed behaviors such as excessive talking, frequent movement, impulsivity, and emotional outbursts, aligning with the hyperactive-impulsive type of ADHD.

Thus, in this study, the distribution of ADHD types among fifth-grade students consisted of 75% inattentive type and 25% hyperactive-impulsive type. These findings are observational identifications rather than clinical diagnoses, serving as a basis for designing differentiated learning strategies that accommodate each ADHD type's needs.

The Learning Process Using Wordwall Media

Learning was conducted through five cycles of Classroom Action Research (CAR), using various Wordwall game formats: *Unjumble*, *Match Up*, *Quiz*, *Find the Match*, and *Group Short*. The variation of these games was intentionally designed to match the different cognitive and behavioral profiles of ADHD students.

For inattentive students, the *Unjumble* and *Match Up* games were found to stimulate sustained attention and visual sequencing, helping students focus on text and structure recognition tasks. Meanwhile, hyperactive-impulsive students responded more positively to *Quiz* and *Find the Match* formats that involved faster reactions and short bursts of focus, aligning with their need for movement, stimulation, and rapid feedback loops (Wijaya et al., 2024).

During implementation, teachers also included physical and sensory-motor activities such as clapping, singing, running, or cutting paper. These activities helped hyperactive students like HS regulate energy and sustain focus for longer periods up to 30–50 minutes indicating improved attention span and emotional regulation.

However, cycles 3 and 4 showed fluctuations in student performance. The slight decrease in cycle 4 scores was attributed to external disturbances, including power outages and classroom noise, which interrupted focus and reduced learning duration. This disruption represents a methodological limitation rather than a decline in cognitive engagement.

Presentation on Improving Student Average Achievement

Throughout the five learning cycles, students' average scores improved progressively, with a minor fluctuation in cycle 4. The final cycle (Cycle 5) showed the most significant improvement, where all students (100%) exceeded the minimum criteria, achieving an average of 76.25.

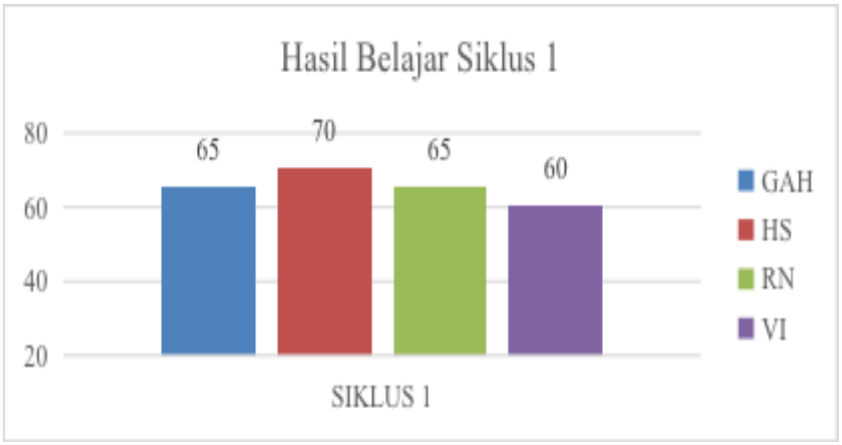


Figure 2. Cycle 1 Learning Outcomes Chart

Cycle 2 was conducted on Wednesday, 12 March 2025, with the main topic being the drafting of procedural texts. The learning outcomes for cycle 2 showed that the highest score was 75 and the lowest score was 65. The learning outcomes for cycle 2 showed an improvement, with 2 students (50%) exceeding the minimum criteria set. Compared to the previous cycle, there was an increase in the average score to 67.50.

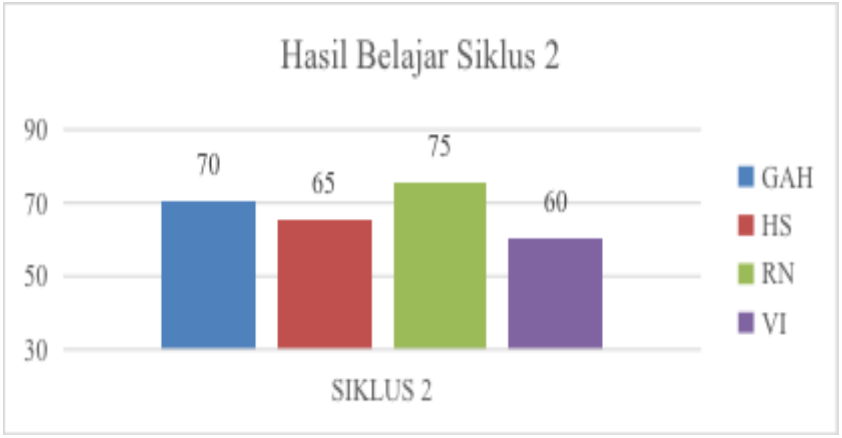


Figure 3. Cycle 2 Learning Outcomes Chart

Cycle 3 was conducted the following week according to the lesson schedule, namely on Tuesday, 18 March 2025, with the main topic being elements in narrative stories. The learning outcomes/results for cycle 3 showed that the highest score was 80 and the lowest score was 65. From the learning outcomes, it appeared that 2 students (50%) had met the minimum criteria set. Although the average learning outcomes/scores of students in Cycle 3 increased to 71.25.

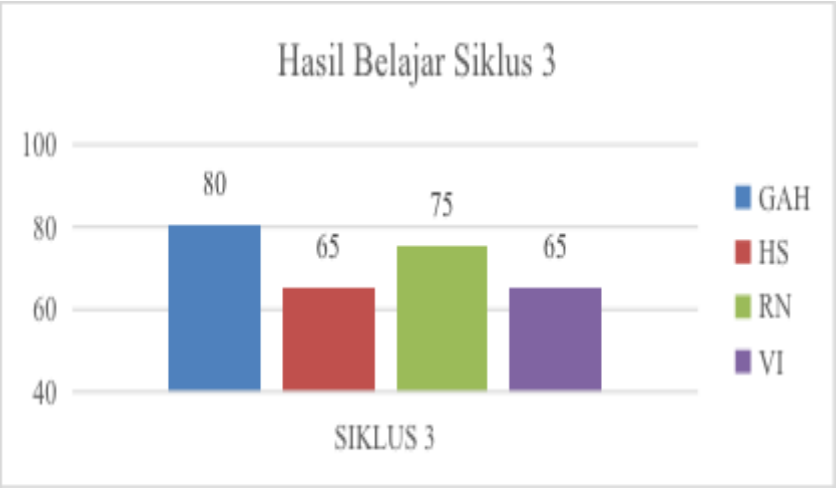


Figure 4. Cycle 2 Learning Outcomes Chart

Cycle 4 was conducted on Wednesday, 19 March 2025, with the main topic being determining the main idea in a paragraph. After calculation, the highest score was 75, while the lowest score was 65. Upon analysis, it was found that there was a decline in the average score of students from the previous cycle, which was 68.75. Meanwhile, out of four students, only two students (50%) were able to exceed the minimum criteria set.

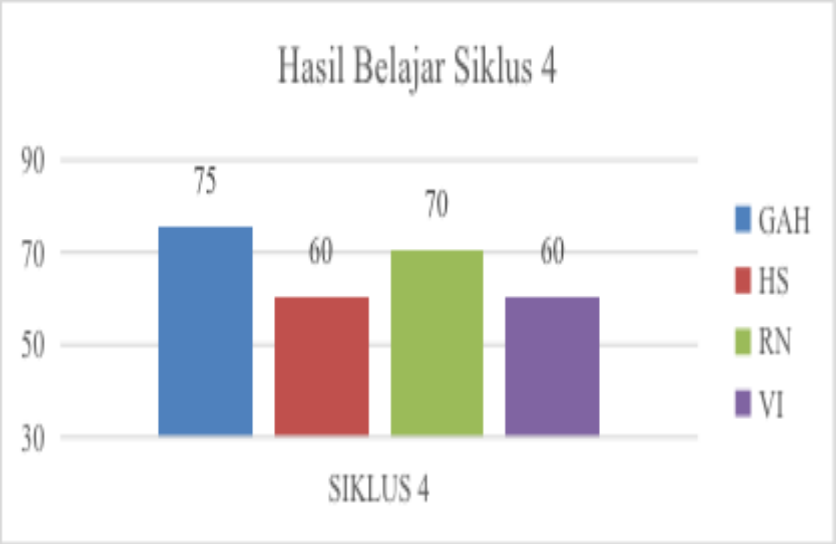


Figure 5. Cycle 4 Learning Outcomes Chart

The last cycle was held on Tuesday, 25 March 2025, with the topic of idioms. From the learning outcomes achieved, the highest score was 85 and the lowest score was 75. After improvements were made from the previous cycle, the average student score increased again to 76.25. In addition, it appears that all students with ADHD (100%) were able to achieve scores above the minimum criteria set.

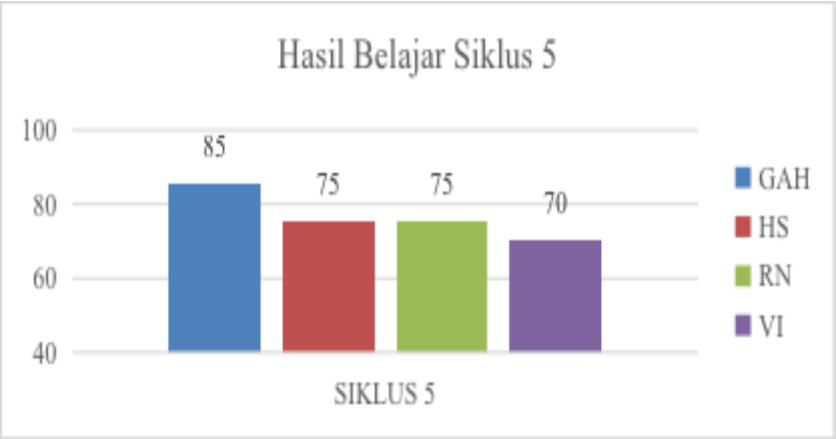


Figure 6. Cycle 5 Learning Outcomes Chart

Based on the results of the first to fifth cycles, the average learning achievement fluctuated from cycle 1 to cycle 3. However, in cycle 4, the average student achievement declined slightly. Upon further investigation, the decline was attributed to the difficulty level of the material and the lack of classroom conditioning. During cycle 4, there was an unexpected power outage, causing the classroom to become noisy for a moment. As a result, the learning duration became shorter and the effectiveness of learning decreased. The results of cycle 4 became the basis for improving the quality of learning in the next cycle. After cycle 5, the average student score increased again.

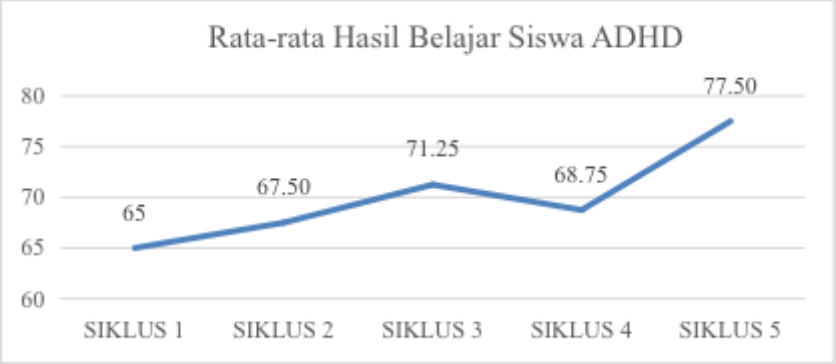


Figure 7. Graph of Average Learning Outcomes of Students with ADHD

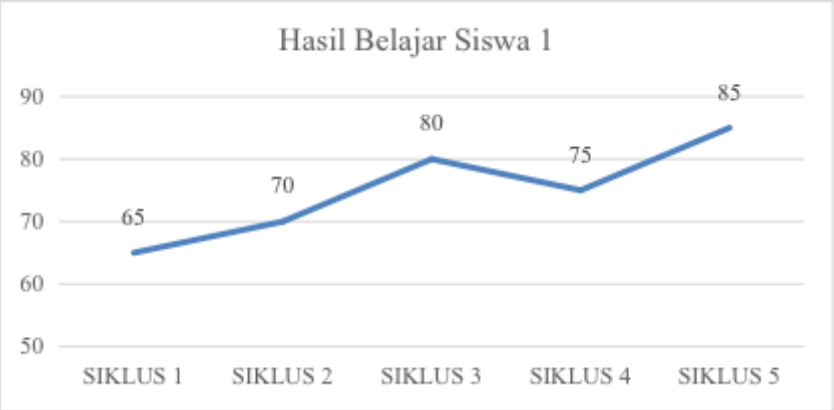
A deeper analysis reveals differentiated improvement patterns across ADHD types. Inattentive-type students (GAH, RN, VI) showed gradual improvement across cycles, indicating the effectiveness of structured, repetitive, and visually engaging Wordwall activities. Hyperactive-impulsive-type student (HS) demonstrated a distinct trend: his score peaked at 80 in Cycle 5. This improvement is closely related to the integration of movement-based learning and interactive digital media that channel physical activity into constructive engagement. These learning designs met the kinesthetic and stimulation needs of hyperactive learners, supporting both cognitive focus and emotional regulation.

Individual Progress Report

Beyond numerical improvement, qualitative observations showed meaningful behavioral changes. Inattentive students became more consistent in completing assignments and maintaining focus during group discussions. Hyperactive-impulsive students exhibited

reduced disruptive behaviors, greater patience, and more controlled communication patterns

Figure 8. Student Learning Outcomes 1



Meanwhile, the learning achievements of a student with the initials HS produced a curved line. The student's learning achievements showed a decline in cycle two, from 70 to 65, and continued to decline in cycle three. Then there was an increase again after the implementation of the fourth and fifth cycles with scores of 70 and 80. It appears that the highest learning achievement that students can achieve is 80. After five lessons, student learning achievements that exceed the minimum criteria are seen in cycles 1, 4 and 5 with scores of 70 and 80. When averaged, the learning achievement of student HS is 70.

Figure 9. Student Learning Outcomes 2

Meanwhile, the learning achievements of the student with ADHD, whose initials are RN, did not show extreme improvement. In cycles 2 and 5, the student's learning achievements increased from a score of 65 to 75. However, there was also a decline in learning achievements in cycle 4. It appears that the highest learning achievement that the student was able to achieve was 75. After five lessons, the student's learning achievements that exceeded the minimum criteria were seen in cycles 2, 3 and 5 with a score of 75. When averaged, the student's learning achievements were 71.00.

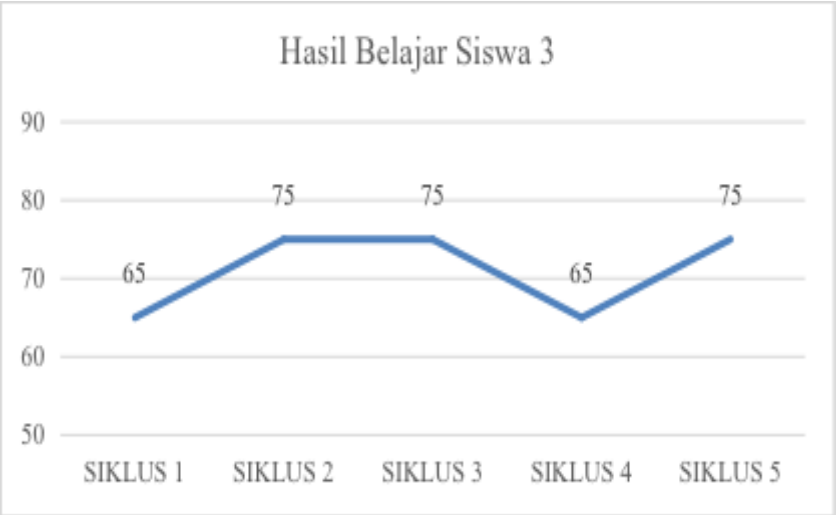


Figure 10. Learning Outcomes of Students 3

For the student with ADHD, initials VI, it was found that their learning achievements did not show significant improvement and tended to remain flat. In cycles 1 and 2, the student scored 60. In cycles 3 and 4, the student scored 65. In the final cycle, the score increased to 70. The improvement in the student's learning achievements was seen in cycles 3 and 4 with scores of 60 and 70. Meanwhile, the highest learning achievement that the student was able to achieve was 70. After five lessons, student achievement/learning outcomes that exceeded the minimum criteria were only seen in cycle 5 with a score of 70. When averaged, the learning outcomes of HS students were 64.00.

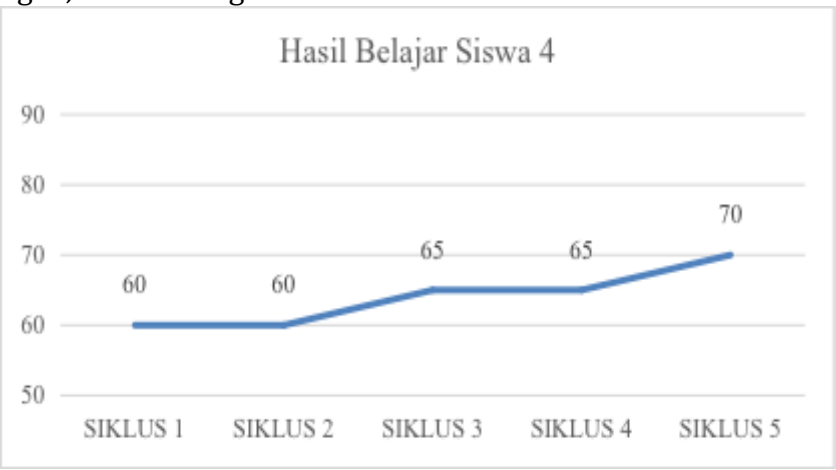


Figure 11. Learning Outcomes of Students 4

The presentation of the achievements/results of students with ADHD individually shows varying results. Upon examination, an increase in learning achievements/results generally occurred in cycle 5. Based on the individual score results, three students (75%) obtained an average score above 70. These findings suggest that gamified and multimodal media such as Wordwall can effectively bridge the gap between cognitive engagement and behavioral management for students with ADHD, especially when combined with movement-based learning strategies.

D. Conclusions

Based on the reviewed results, it can be concluded that learning using Wordwall was proven to improve the Indonesian language learning outcomes of students with ADHD in grade V at SDN 07 Sedoya. Through the implementation of Wordwall over five learning cycles, there was a gradual increase in the average learning achievement of the four students with ADHD. Individual results showed that the first student scored 75, the second 70, the third 71, and the fourth 64. Thus, the individual average indicates that three students with ADHD symptoms (75%) were able to achieve scores exceeding the minimum competency criterion of 70. The results also demonstrate that the application of Wordwall successfully enhanced the enthusiasm and concentration of students with ADHD during the learning process.

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