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Enhancing English Vocabulary Learning for Students with Autism Spectrum Disorder through the Learn English for Kids Application

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Abstract

Autism Spectrum Disorder (ASD) is a developmental condition that affects communication, social interaction, and behavior, often making language learning more challenging. As a result, language teaching programs for students with autism must be designed differently from those created for typically developing learners. Most autistic learners are visual thinkers who acquire knowledge more effectively through images and visual aids. To support this need, an application called Learn English for Kids was developed to help children with autism learn English vocabulary. This study examines the use of the Learn English for Kids application as a tool for teaching English vocabulary to students with ASD. A qualitative descriptive method was employed at SLB Yamet School Cendana Lampung, involving five male students diagnosed with autism. The findings indicate that integrating visual and auditory features within the application creates a stimulating and supportive learning environment that aligns with the learning characteristics of children with autism. The use of reinforcement enhances engagement and comprehension, although challenges such as limited attention span and mood fluctuations persist. Combining digital media with behavioral strategies offers an effective framework for inclusive language instruction.

Keywords: *Autism Spectrum Disorder, vocabulary learning, visual learning, educational application, inclusive language teaching.*

INTRODUCTION

Autism is a complex developmental disorder that affects behavior, communication, and social–emotional interaction, making it challenging for affected children to acquire essential skills and knowledge (Cheng et al., 2018; Iswari & Nurhastuti, 2018). Hirota and King (2023) describe Autism Spectrum Disorder (ASD) as a lifelong condition characterized by varying degrees of impairment, ranging from mild to severe, and marked by restricted, repetitive behaviors and difficulties in social communication. Symptoms typically emerge before the age of three and may persist into adulthood without appropriate intervention. In Indonesia, education is a fundamental right for all citizens, including children with special needs. These children are now given the opportunity to attend regular schools through inclusive education. Inclusive schools allow students with special needs to learn alongside their peers and receive an equitable

education tailored to their individual needs (Munita & Hasan, 2019; Susanto & Nanda, 2018). Such an educational approach seeks to foster equal learning opportunities, reduce discrimination, and enhance social interaction among diverse learners.

In today's globalized era, education must align with international standards, including the mastery of English, which functions as a global lingua franca and holds importance comparable to Indonesian. However, children with autism are often perceived as challenging to teach due to difficulties in adapting to conventional teaching and learning processes. Although they experience communication and social challenges, many students with autism possess average or above-average intelligence. As Hinzen (2022) emphasizes, understanding the social and cultural context of communication among individuals with autism is essential, as it reflects their unique identities and experiences.

Communication difficulties experienced by children with ASD often hinder their language development process. These challenges manifest in learning vocabulary, grammar, and pronunciation, as well as in developing speaking, listening, reading, and writing skills. Vocabulary, in particular, plays a fundamental role in language acquisition (Ihsani, Nanda, & Susanto, 2025; Puri, Rodiatun, & Susanto, 2019; Susanto & Nanda, 2025a). Mastery of vocabulary including spelling, meaning, context, and pronunciation is necessary for the successful development of other English language skills (Purwanto & Hidayad, 2022; Susanto & Nanda, 2025b). Therefore, vocabulary instruction must be adapted to meet the learning needs of students with autism.

Children with ASD require specialized teaching approaches and media to support language learning, particularly in vocabulary acquisition. Classroom observations revealed that students struggled to understand learning materials and demonstrated limited language proficiency when traditional instructional methods were used. Visual media such as pictures and educational applications can provide concrete representations that help students, especially those with autism, grasp new concepts more easily. Vocabulary, such as nouns, is particularly well-suited to visual instruction. As Susanti (2024) notes, visual aids significantly enhance comprehension and retention of vocabulary, especially nouns, because they offer tangible and relatable representations. For this reason, teaching nouns through visuals is generally more effective for students with autism than teaching other types of vocabulary.

Children with autism, like other learners with special needs, are increasingly gaining access to English language instruction. However, teaching English to children with autism demands a higher level of consistency, creativity, patience, and empathy compared to teaching typically developing learners. Masitoh (2022) notes that individuals with autism often experience difficulties in understanding oral information, following verbal instructions, and remembering sequences of commands. Although various therapeutic approaches exist to support children with autism, no single method is universally effective. Each child may respond differently, requiring careful, ongoing observation and individualized intervention. Despite this, public awareness of how to identify and appropriately support children with autism remains limited. To enhance language learning, particularly vocabulary acquisition, interactive digital applications can serve as effective learning tools. Children learn not only through observation but also through interactive engagement with their environment. In line with this idea, the researchers incorporated the Learn English for Kids application as a supplementary medium to improve comprehension, motivation, and participation in learning. The application is easily accessible on smartphones especially android devices which are widely used in daily life.

The Learn English for Kids application includes several features that make it suitable for teaching English vocabulary to children with autism. It offers simple, user-friendly navigation, interactive visual representations to introduce new words, clear audio models for pronunciation and a range of thematic vocabulary categories such as letters, colors, shapes, numbers, home

items. Additionally, the app enables parents to monitor their child's learning progress, making it a valuable tool for home–school collaboration. Its engaging and interactive format aims to make English learning more enjoyable, meaningful, and effective for young learners. Based on the background described above, this research aims to address the following question: How can the Learn English for Kids application be utilized to teach English vocabulary to children with Autism Spectrum Disorder at SLB Yamet School Cendana Lampung?

METHOD

This study employed a qualitative research design (Arikunto, 2006; Creswell & Creswell, 2022; Sugiyono, 2013) with a descriptive approach to explore the use of the Learn English for Kids application in enhancing English vocabulary acquisition among students with Autism Spectrum Disorder (ASD). The research was conducted from December 2023 to February 2024 at SLB Yamet Cendana Lampung and involved five male students with diagnosed ASD, aged 9 to 12 years. The application functioned as the principal instructional medium and was systematically integrated into five learning sessions, each of which addressed a distinct vocabulary theme, namely letters, numbers, colors, shapes, and home. Multiple data collection techniques were employed to ensure the credibility and richness of the findings, primarily through participant observation and documentation. Participant observation enabled the researchers to obtain authentic and contextually grounded insights into students' cognitive, behavioral, and affective responses during the instructional process. Direct involvement in classroom activities allowed for close observation of learner engagement, interaction patterns, and verbal or non-verbal responses while the application was utilized. Field notes were compiled to record salient events, observable reactions, and behavioral changes throughout the intervention. To complement and triangulate the observational data, documentation in the form of video and audio recordings as well as photographic evidence was gathered. These documented materials served as a secondary data source, providing visual and recorded verification that strengthened data validity and captured nuanced details not always evident during real-time observation.

Data analysis was conducted through three interconnected stages: data reduction, data display, and conclusion drawing and verification. Data reduction entailed the systematic selection, organization, and synthesis of relevant information to identify emerging themes aligned with the research objectives. The reduced data were subsequently arranged and presented in a coherent and structured manner to facilitate accurate interpretation. The final phase involved drawing conclusions based on the analyzed data, with continuous verification against field evidence to ensure rigor, credibility, and trustworthiness of the findings. Prior to implementation, the researchers prepared all required instructional materials and technological tools, including smartphones equipped with the Learn English for Kids application and devices designated for documentation purposes. Following this preparatory phase, the teaching sessions were executed, with the application consistently employed as the central pedagogical instrument throughout the study.

RESULT AND DISCUSSION

Implementation of the Learn English for Kids Application

The Learn English for Kids application was implemented across five sessions, with each session focusing on a different vocabulary theme: letters (Session 1), numbers (Session 2), colors (Session 3), shapes (Session 4), and home (Session 5). During each session, students explored the application's interactive features to learn, practice, and reinforce vocabulary.

Figure 1. Home Page Display

The home page (Figure 1) features four main menu options—Learn, Test, Quiz, and Fun—supported by three additional buttons at the bottom: Share, which enables users to send the application link to others; Rate, which allows users to provide feedback; and More, which contains additional content, including advertisements. This menu design presents a clear and organized structure that accommodates different learning styles and levels of readiness. The separation of functions into distinct categories provides predictable navigation, which is particularly beneficial for students with ASD, who often rely on routine and clarity to remain comfortable and engaged. Each main feature plays a different role in the learning process, ranging from introducing vocabulary, practicing and checking understanding, to reinforcing learning through interactive activities. The layout offers a user-friendly and accessible interface that encourages independent exploration while promoting consistent engagement and learning progression.

Figure 2. Learn Menu Display

Selecting the Learn feature (Figure 2) directs users to a menu containing 16 vocabulary themes, allowing learners to choose topics according to their interests or the instructional plan. For example, in Session 1, the Letters theme was selected to introduce alphabet vocabulary. Upon entering a topic, the learning display presents a clear visual of the item accompanied by its corresponding written vocabulary word. The interface includes navigation icons that enable users to move through the slides either manually or automatically, allowing pacing to be adjusted based on learner needs. In addition, a speaker icon is available for students to listen to the pronunciation of each vocabulary word as many times as needed. This multimodal (visual–auditory) learning format is particularly advantageous for learners with ASD, as it provides structured repetition, predictable instructional flow, and sensory-supported input. The

combination of images, text, and audio supports dual-coding of information, aiding both comprehension and memory retention. Moreover, the ability to independently replay the audio promotes self-paced learning and reduces reliance on verbal prompts from teachers, which is beneficial for students who experience challenges with direct social interaction or auditory processing. The Learn feature establishes a supportive environment for initial vocabulary acquisition, enabling ASD learners to process, rehearse, and internalize new information more effectively before progressing to assessment-based activities.

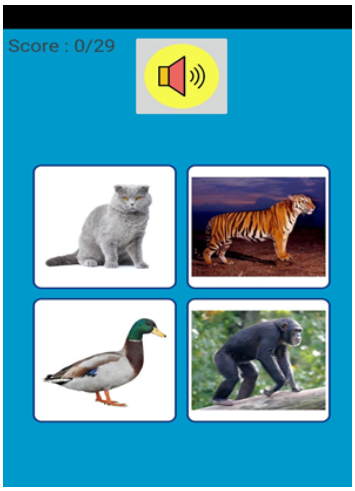

Figure 3. Test Menu Display

The Test feature (Figure 3) functions as a structured reinforcement activity designed to assess and strengthen learners' receptive understanding of previously taught vocabulary. While the available topic options remain identical to those in the Learn feature, this stage requires students to apply their knowledge without the aid of written text. The activity operates by presenting an audio prompt of a vocabulary word, followed by a set of visual options from which learners must select the picture that corresponds to the spoken word. This design emphasizes listening comprehension and auditory discrimination, allowing learners to demonstrate recognition based solely on sound rather than reading cues. The absence of written vocabulary encourages students to rely on phonological processing and memory recall, which is particularly beneficial for ASD learners who may depend heavily on visual text or pattern recognition. Immediate scoring is provided at the end of a set of questions, allowing students and educators to monitor performance and progress. However, incorrect responses are not visually indicated or corrected, which may limit opportunities for reflection and self-correction.

Despite this limitation, the Test feature plays an important role in reinforcing vocabulary retention through repeated exposure to auditory input and active selection tasks. It reinforces comprehension by shifting from guided learning to independent recall, helping students transition from passive recognition to more active processing. For learners with ASD—who often benefit from clear structure, repetition, and predictable testing formats—this feature supports memory consolidation, encourages focused listening, and reduces cognitive overload by limiting the amount of information presented at one time. The Test feature strengthens the foundational learning acquired in the Learn mode and prepares students for more complex application tasks presented in subsequent features.

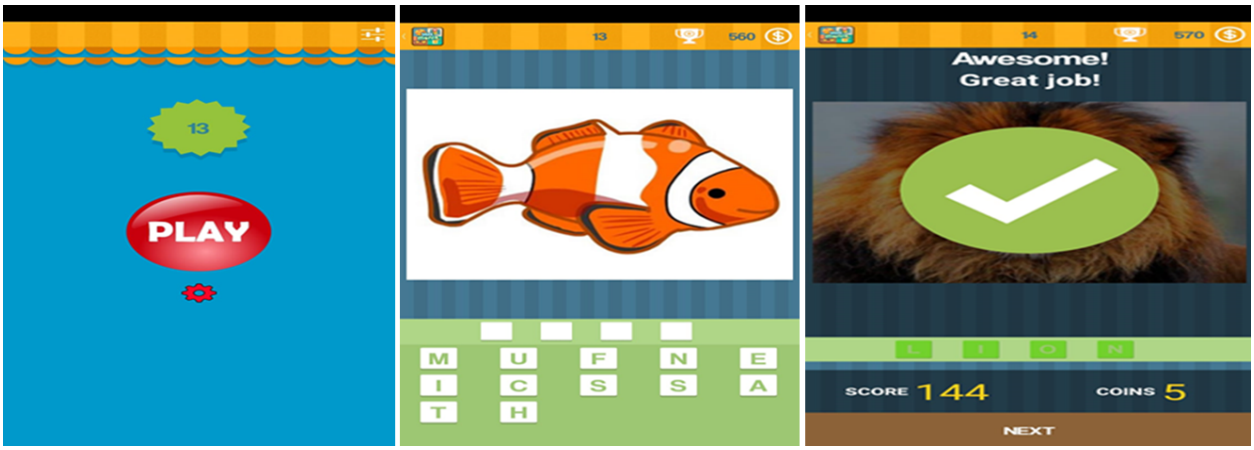

Figure 4. Quiz Menu Display

The Quiz feature (Figure 4) introduces a word-construction activity that requires learners to actively apply their spelling knowledge. In this mode, students are presented with a visual prompt in the form of an image accompanied by a set of scrambled letters. A blank answer box is displayed, containing spaces that correspond to the number of letters in the target vocabulary word. To complete the task, learners must correctly arrange the shuffled letters to form the word associated with the image shown. This activity serves as an important step in advancing vocabulary learning from recognition to active linguistic production, engaging learners in higher-order cognitive processes. Unlike the Learn and Test features, which focus primarily on receptive skills (listening and recognition), the Quiz feature emphasizes expressive literacy skills, including spelling accuracy, orthographic awareness, and vocabulary recall. The requirement to mentally process letter sequences, match them to phonological patterns, and form a meaningful word helps strengthen neural connections related to literacy development.

When students successfully construct the correct word, the application provides immediate positive reinforcement: their score increases, virtual coins are awarded as a motivational reward, and a "Next" button appears, signaling progression to the following item. This gamified reinforcement encourages sustained engagement, persistence, and a sense of accomplishment—factors particularly beneficial for ASD learners, who often respond well to clear cause-and-effect feedback and reward-based motivation. Additionally, the combination of image cues, letter manipulation, and reward mechanisms promotes multisensory learning, supporting students with ASD who benefit from structured, interactive, and visually supported tasks. The cognitive effort required to analyze letters, sequence them correctly, and verify their accuracy fosters improved problem-solving, working memory, and executive functioning skills. The Quiz feature bridges receptive and expressive vocabulary learning by transforming passive recognition into active spelling and word-building practice, thereby reinforcing long-term vocabulary retention.

Figure 5. Fun Menu Display

Finally, the Fun feature (Figure 5) provides a game-based learning component designed to foster an enjoyable and motivating learning environment. In this section, students are required to match three or more identical images to earn points and reach a predetermined target within a limited timeframe, represented visually through a dynamite-shaped countdown timer. This gamified element introduces challenge, urgency, and reward, which helps sustain learners' interest throughout the activity. For students with ASD, who often experience difficulties with maintaining attention and motivation during conventional learning tasks, this feature offers an alternative, play-based modality that enhances engagement. The combination of visual stimuli, immediate feedback, and clear goal-oriented tasks supports increased focus and encourages students to remain on task for longer periods. Additionally, the Fun feature reinforces vocabulary indirectly, as repeated exposure to familiar images during gameplay strengthens memory retention. The element of competition either with the timer or personal performance goals can further promote intrinsic motivation, making the learning experience more enjoyable, interactive, and supportive of cognitive, linguistic, and behavioural development for students with ASD.

Teaching Process

The teaching process using the Learn English for Kids application was carried out in three systematic stages: the initial stage, the main teaching stage, and the final stage. These stages were designed to gradually build students' readiness, engagement, participation, and mastery of the target vocabulary. In the initial stage, the lesson began with clear verbal instructions directing students to sit properly and prepare themselves for the learning activities. Establishing this routine helped students develop self-regulation and readiness to learn, which are essential for children with Autism Spectrum Disorder (ASD). Once students demonstrated appropriate readiness, they were greeted warmly to create a positive and supportive learning atmosphere. The topic for the session was then introduced to help students anticipate what they would learn, thereby reducing anxiety and confusion.

The main teaching stage formed the core of the instructional process and involved step-by-step guidance while using the application. The session commenced with introducing the Learn feature and choosing the vocabulary theme relevant to the day's lesson, ensuring that learning was structured and goal-oriented. To enhance comprehension and scaffold learning, new vocabulary was initially presented in the students' native language before transitioning to English. This bilingual approach enabled students to activate prior knowledge and build associations between familiar and new concepts. After introducing the vocabulary, the English pronunciation was modelled by tapping the audio icon in the application. For instance, when

introducing the letter "A", students listened to the audio model and were prompted to repeat the sound. This exercise was repeated several times until correct pronunciation was achieved, reflecting the emphasis on auditory imitation and articulation—skills often requiring repeated exposure among children with ASD. Students were then gradually encouraged to interact with the application independently, starting with tapping the audio icon to rehear the pronunciation. Sufficient processing time was provided to accommodate individual differences in cognitive and sensory processing. Instructions were repeated when necessary, as consistent repetition is an effective strategy to support memory retention and comprehension in ASD learners.

To promote correct use of the application, behavioral redirection was provided when inappropriate use occurred—for example, when a student tapped buttons excessively. Such behavior was addressed calmly yet firmly by stating, "Tidak boleh, kliknya sekali saja ya, kita belajar pelan-pelan" (Do not click more than once, okay? Let's learn slowly), accompanied by eye contact to reinforce understanding. Throughout the learning process, therapeutic and instructional strategies were applied in a consistent and sequential manner. Intentional eye contact, firm guidance, and structured routines helped maintain student focus, support self-regulation, and enhance comprehension of instructions.

Despite structured implementation, several challenges emerged during this stage. These included difficulty in regulating students' moods, limited ability to process and understand verbal instructions, and occasional re-emergence of ASD-related behaviors such as sudden laughter, screaming, or self-biting. These challenges required adaptive teaching responses, such as simplifying instructions, providing additional repetition, using visual and verbal prompts, or pausing the activity when necessary to prevent overstimulation. Such adjustments were essential for sustaining student engagement and ensuring that learning continued effectively despite behavioral fluctuations.

In the final stage, positive reinforcement strategies were implemented to strengthen desirable behaviors and enhance motivation. Students who successfully completed tasks or followed instructions correctly received verbal praise, which served as an immediate reward and recognition of their efforts. This form of reinforcement encouraged continued participation, boosted self-confidence, and fostered a sense of achievement. Over time, these rewarding experiences helped students develop positive attitudes toward learning English through digital media.

Participant Learning Progress Across Five Learning Sessions

Across the first two instructional meetings, which focused respectively on alphabet recognition and numerical skills delivered through a digital learning application, the students demonstrated varied levels of linguistic proficiency, engagement, and cognitive processing. While all participating students showed willingness to engage with the learning tasks, noticeable differences emerged in pronunciation accuracy, attention regulation, and symbolic understanding. During Meeting 1 (Letters), Student 1 demonstrated generally accurate pronunciation of English letter sounds, with minor articulation difficulties noted for W ("double-u"), J ("je"), and K ("ke"). The student was engaged with the application and appeared motivated by the interactive features, although this enthusiasm reduced opportunities for eye contact due to a preoccupation with tapping buttons. The student responded actively and expressively, achieving 10 out of 11 correct responses. Student 2 attempted to repeat the letters but produced unclear vocal output. Although attention to the application fluctuated, the student maintained better eye contact compared to Student 1 and frequently echoed spoken input with marked emotional expressiveness. Pronunciation inaccuracies were consistently recorded for A, H, I, L, X, and Y, resulting in 10 out of 25 correct answers. Student 3 encountered significant difficulty following instructions and pronouncing most letter sounds, speaking in a subdued tone with

limited on-task behavior and occasional inappropriate laughter. Responses were hesitant and reliant on peer assistance, suggesting minimal understanding of alphabetic symbols beyond simple sound repetition. In contrast, Student 4 exhibited accurate pronunciation, appropriate questioning, and consistent engagement. Although occasionally distracted by unrelated inquiries, the student navigated the application independently with sustained enthusiasm, scoring 10 out of 12. Student 5 was absent.

During Meeting 2 (Numbers), similar patterns of engagement were observed, though several students demonstrated progress in attention and bilingual number recall. Student 1 again showed strong numerical recall in both Indonesian and English and maintained high enthusiasm throughout the session. However, the student's attention remained focused primarily on the application rather than social interaction, with limited eye contact and repeated tapping of audio buttons due to excitement. Nevertheless, performance remained strong, with 13 out of 14 correct responses. Student 2 exhibited clearer progress in this session, naming numbers in both languages with improved task focus and more consistent eye contact; however, pronunciation challenges persisted for "one," "five," "seven," and "nine," yielding 6 out of 10 correct answers. Student 3 demonstrated partial English number pronunciation but continued to struggle with symbol recognition and required extended processing time when responding. Pronunciation errors were observed for "five," "eight," and "nine," accompanied by intermittent lapses in focus. Student 4 was absent during Meeting 2. Student 5 exhibited strong numeracy skills, accurately naming numbers from 1 to 20 in Indonesian and English, and maintained high task focus; however, the student's insistence on exclusive control of the device occasionally hindered peer participation. The student achieved a perfect score of 20 out of 20.

The findings from Meetings 1 and 2 reveal three developmental patterns in students' early engagement with English vocabulary learning. First, there were marked differences in students' phonetic awareness and symbolic understanding of English, particularly in letter recognition and number-word correspondence. While some students demonstrated accurate pronunciation and strong receptive understanding of phonemes, others struggled to articulate target sounds, differentiate between visually similar letters or numbers, or associate symbols with their spoken forms. These variations reflect the heterogeneous linguistic profiles commonly observed among children with ASD, who may differ in auditory processing, speech clarity, and phonological working memory. Second, the data indicate motivation, curiosity, and engagement when interacting with the digital learning application, suggesting that technology-supported instruction aligns well with the sensory preferences and self-directed exploration styles of many ASD learners. However, in several cases, this enthusiasm manifested as repetitive tapping, overuse of navigation buttons, or rigid insistence on controlling the device, which at times limited opportunities for social reciprocity, shared attention, and cooperative turn-taking. These behaviors highlight the dual role of technology as both a motivational driver and a potential barrier to social learning if not mediated appropriately.

Third, attentional regulation varied considerably across learners, with some students demonstrating sustained focus throughout the sessions, while others required additional scaffolding—such as verbal cues, visual prompts, or guided hand-over-hand support—to remain on task. Difficulties included distractibility, rapid topic-shifting, or sensory-seeking behaviors that interrupted learning flow. These attention-related patterns underscore the importance of integrating structured routines, clear behavioral expectations, and sensory-aware adjustments to ensure optimal learning conditions for students with ASD. These observations emphasize the need for differentiated instructional strategies as the program progresses. Specifically, planned interventions should incorporate structured turn-taking protocols to foster social communication, systematic pronunciation modeling with opportunities for imitation and corrective feedback, and a gradual fading of dependence on auditory prompts to encourage independent recall and self-

regulated learning. Such approaches are expected to strengthen both linguistic competence and socio-communicative development in subsequent sessions.

During Meetings 3 and 4, which focused on vocabulary development related to colors and shapes through the continued use of a digital learning application supplemented with physical learning aids, students demonstrated differing levels of attention, pronunciation accuracy, and cognitive processing of new concepts. Learners showed engagement with the activities, although their performance varied depending on focus, reliance on visual aids, and ability to generalize knowledge across contexts. In Meeting 3 (Colors), Student 1 appeared highly stimulated by the physical learning materials and digital interface, resulting in distractibility and frequent shifts in attention. The student tended to rapidly press the audio functions repeatedly and struggled to retain visual associations, demonstrating recall of only a limited number of images during the assessment. Pronunciation challenges were noted for "brown" ("brow"), "red" ("wed"), and "blue" ("blo"), with the student obtaining 7 out of 12 correct responses. Student 2 displayed stronger task engagement, maintaining attention to the application despite minimal eye contact. The student consistently repeated the facilitator's verbal models and avoided distraction from surrounding objects, scoring 6 out of 12; however, pronunciation difficulties persisted for "white" ("wa") and "purple" ("perpel"). Student 3 was able to repeat the color vocabulary but demonstrated limited focus throughout the session. Pronunciation errors were observed for several colors, including "gray" ("gre"), "white" ("wei"), "black" ("bek"), and "yellow" ("yello"). Student 4 exhibited sustained engagement and eye contact while using the application, although occasional off-topic questions briefly disrupted focus. The student demonstrated high expressiveness and emotional involvement when responding, particularly in reaction to errors, and scored 11 out of 12. Notably, Student 4 showed intrinsic motivation to explore new vocabulary themes (Food and Professions) beyond the lesson objectives, attempting to use the Test feature independently. After minimal guidance, the student successfully selected correct responses and displayed enthusiasm and reflective awareness of mistakes. Student 5 was absent.

In Meeting 4 (Shapes), several students demonstrated improved focus and deeper comprehension when real objects were integrated to support shape recognition. Student 1 remained attentive and benefited from concrete visual aids that aligned with the images in the application. However, during independent app-based tasks, difficulty retaining vocabulary emerged, resulting in 6 out of 10 correct responses. A pronunciation error was recorded for "hexagon" ("exego"). Student 2 was absent. Student 3 participated calmly, demonstrated learning through maintained eye contact, and showed adequate focus when provided with prompts. The student was able to repeat vocabulary when cued, respond using visual support, and achieved 5 out of 7 correct answers, though pronunciation challenges were present for "square" ("skue"), "oval" ("ova"), and "triangle" ("tra"). Student 4 sustained focus on the application and maintained eye contact, though occasional unrelated questioning momentarily interrupted attention. The student showed strong expressive responses to both correct and incorrect answers and demonstrated the ability to apply learned concepts to real-world contexts, citing an example of a triangle resembling the pyramids in Egypt. The student answered 7 out of 11 questions correctly. Student 5 displayed calm engagement with consistent eye contact and navigated the application without distraction, achieving a perfect score of 11 out of 11. The results from Meetings 3 and 4 indicate that students benefit from multimodal instructional approaches that combine digital learning with concrete objects to support vocabulary retention. Variability remained evident in pronunciation accuracy, sustained attention, and the ability to transfer learning beyond guided practice. The observations suggest the importance of incorporating structured turn-taking, targeted pronunciation drills, and meaning-making strategies to enhance vocabulary acquisition, retention, and generalization in subsequent sessions.

Meeting 5 marked the final instructional session and centered on vocabulary related to the theme Home using the digital learning application. Students demonstrated varying levels of engagement, emotional regulation, and vocabulary acquisition, with some learners showing a preference for self-directed exploration of alternative themes. Across the session, fluctuations in attention, affective responses, and ASD-related behaviors were observed, influencing students' levels of participation and performance. Student 1 began the session with adequate focus while using the application, though with noticeably reduced enthusiasm and limited eye contact compared to previous meetings. Midway through the session, the student exhibited ASD-related behaviors, including finger biting and calling out for assistance, which disrupted engagement and hindered sustained participation in the learning task. Student 2 was absent and did not participate. Student 3 demonstrated limited concentration throughout the session but was able to repeat English vocabulary related to household objects and answer several questions correctly. Similar to Student 1, ASD-related behaviors emerged during the session, including finger biting, sudden shouting, and unexpected laughter, which impacted task engagement and focus.

Student 4 showed difficulty grasping the Home theme and displayed heightened expressiveness, particularly when responding incorrectly. However, upon electing to explore the Animals theme independently, the student's performance improved considerably. In this alternative theme, the student demonstrated clearer pronunciation, increased accuracy, and stronger engagement, successfully answering all questions correctly. This shift indicated heightened motivation and responsiveness when interacting with personally preferred content. Student 5 displayed high attentiveness to the audio features of the application, although eye contact remained limited as the student concentrated primarily on the device. The student independently navigated the application, correctly answering all questions in the Home theme before choosing to explore two additional themes—Body Parts and Animals. During the Body Parts theme, the student demonstrated strong engagement and preferred not to be interrupted by peers when operating the device. Limited eye contact persisted, with focus directed toward the application interface. The student repetitively pronounced the words stomach, neck, and back, often accompanied by a soft chuckle, which may indicate a self-stimulatory or self-regulating behavior associated with engagement.

Additional observations from Meeting 5 revealed that both Students 4 and 5 independently explored the Animals theme and demonstrated accurate pronunciation and high task performance. Notably, both students repeatedly vocalized the word "spider" with strong emotional reactions, showing signs of anxiety or discomfort, such as screaming or expressions of surprise. This pattern suggests that the term triggered a fear response, likely connected to the semantic content or visual cue associated with the word. The final meeting highlighted increased autonomous exploration of thematic content among some students, alongside varying emotional and behavioral responses that influenced learning. The session further emphasized the importance of flexible instruction that accommodates student interest, emotional regulation needs, and self-directed learning opportunities, particularly when working with neurodiverse learners within digital language-learning environments.

Vocabulary Learning Among Students

Students with Autism Spectrum Disorder (ASD) frequently experience challenges in language learning, particularly in vocabulary acquisition, due to difficulties with social processing, nonverbal communication, and contextual interpretation. As a result, they often require consistent repetition to process, store, and retrieve new information. In this study, learning activities were intentionally supported through repeated practice and sustained eye contact to reinforce pronunciation and memory, which was reflected in the students' test outcomes. The repetition frequency was adjusted based on individual performance; for instance,

Students 2 and 3 required increased repetition of mispronounced vocabulary to facilitate deeper processing and retention of the target language.

The Learn English for Kids application proved beneficial as it integrates colorful visuals, simple animations, and clear audio narration, with each vocabulary word paired with a corresponding image. This multimodal approach supports ASD learners by making abstract linguistic concepts more concrete through visual representation, while audio input strengthens phonological awareness and pronunciation. This benefit was evident in Students 4 and 5, who showed strong engagement with the visual elements and demonstrated expressive responses during the app-based tests. In contrast, Student 1 tended to rely more heavily on the audio narration, indicating variability in learning modality preferences among ASD students. Nonetheless, the combination of structured visuals, intuitive icons, and auditory cues supported information processing for all learners.

The structured and repetitive nature of the application aligned well with the learning needs of ASD students, who typically respond positively to predictable routines, immediate reinforcement, and clear instructions. Findings from this study indicate that systematic repetition and visual–auditory reinforcement contributed to improvements in vocabulary recognition and pronunciation across multiple thematic areas, including letters, numbers, colors, shapes, and home-related vocabulary. The inclusion of different modes—Learn, Test, Quiz, and Fun—also promoted active learning through interactive engagement and immediate feedback, both of which are essential for motivation and retention among ASD learners.

Despite these strengths, notable challenges emerged. The study involved five children with ASD who presented with varying levels of verbal ability. Three students demonstrated clear verbal communication, whereas the remaining two had limited speech clarity, prompting adjustments to instructional delivery. The primary differentiation involved increasing repetition frequency and using more frequent eye contact to sustain attention and enhance comprehension for students needing higher support. These findings align with Masitoh (2022), who emphasizes that ASD learners often struggle with maintaining focus, following verbal instructions, and regulating emotions during learning activities. In this study, behavioral regulation techniques such as prompt–stimulus–response cycles and positive reinforcement effectively minimized disruptions and maintained engagement. Tangible rewards, including praise and verbal encouragement, further strengthened motivation and supported task persistence.

The results also corroborate previous research. Hashim, Yunus, and Norman (2022) demonstrated the effectiveness of augmented-reality-based vocabulary applications for children with mild autism, while Aksoy (2018) highlighted the significant role of visual and authentic learning materials in enhancing vocabulary retention. Similar to these studies, the present findings reinforce that visual, technology-supported media can enhance both comprehension and active participation among autistic learners. The integration of the Learn English for Kids application created an effective and inclusive learning environment for students with ASD. The findings indicate that autistic learners benefit most from structured, repetitive, visually rich, and interactive instructional approaches. While technology cannot replace the role of teachers and caregivers, it serves as a valuable complementary tool that strengthens motivation, attention, and vocabulary mastery in ASD-friendly language learning contexts.

CONCLUSION

Based on the results and discussion of this research, it can be concluded that the use of the Learn English for Kids has been able to assist researchers in teaching English vocabulary to students with Autism Spectrum Disorder (ASD) at SLB Yamet School Cendana Lampung. The structured and repetitive steps comprising stimulus, response, and reinforcement helped students maintain focus, follow directions, and memorize new words. This research successfully

answers the main objective, which was to identify technology-based media that can enhance the vocabulary acquisition of autistic learners. The findings indicate that integrating visual and auditory features in the Learn English for Kids application provides a stimulating and supportive learning environment that matches the learning characteristics of children with autism. But it needs to be remembered that this application only helps in teaching vocabulary to autistic children, but the role of teachers and parents is very important in the learning development of autistic children. A suggestion for future researchers is that it is important to conduct an ongoing evaluation of the use of the Learn English for Kids app in teaching English to students with ASD. This evaluation should include collecting feedback from parents and teachers, as well as any necessary adjustments in teaching strategies and learning materials based on the results of the evaluation.

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