TAJWEED GAME FOR CHILDREN WITH AUTISM: AN INTERACTIVE GAME FOR AUTISM CHILDREN TO LEARN TAJWEED

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ABSTRACT

Tajweed knowledge is very important in reciting the Quran.Teaching Tajweed faces specific hurdles during the delivery of education to children who have Autism Spectrum Disorder (ASD). Researchers developed a unique interactive system which was made for autistic students to learn the detailed specifications of Tajweed. The methodology utilizes multisensory learning principles as well as gamification techniques and adaptive technologies to implement visual, auditory and kinesthetic learning elements that optimize the mental and sensory processing needs of ASD children. This study employed a mixed-methods approach, involving 20 children aged 6 to 12 diagnosed with ASD, who participated in a 6-week intervention program consisting of twice-weekly 30-minute sessions. The presented approach receives a detailed description, including design specifications and implementation details, which prioritize evidence-based methods for addressing sensory differences alongside user-specific learning requirements. A pilot test of the educational method produced substantial improvements among participants, ranging from their involvement to their ability to understand and memorize Tajweed principles. Research results demonstrate that customized interactive learning systems create better possibilities for autistic children to learn the Quran effectively and find pleasure in their education. The research adds major importance to inclusive education by developing a new framework which combines classical religious instruction techniques with modern educational reform strategies. The finding carry profound implications for inclusive education, providing a clear mandate to develop policies that ensure the genuine integration of children with special needs into faith-based learning environments.

Keywords: Interactive game, Autism Children, Tajweed

INTRODUCTION

Tajweed is the most important element in reciting the Quran. Practicing tajweed when reciting the Quran is a fard ain while learning its legal names is a fard kifayah for Muslims (Khalid Shukry et al.

2003). Learning tajwid today can be taught in many ways, one of which is media games. The educational tajweed game targets children and beginners along with other users to teach tajweed through interactive gameplay. Tajweed game provides users with the chance to understand Quran reading rules better during gameplay. Different developers have created several tajweed games, among which Tajwid Quest stands alongside Quran Tajwid Game and Ez Tajwid, with additional games currently available. Education paired with religion presents an important field for academic study regarding how students with disabilities approach religious texts. In Malaysia, the demand for adaptive Quranic education for children with Autism Spectrum Disorder (ASD) is increasing. According to the National Autism Society of Malaysia (NASOM) (2025), there are over 9000 children diagnosed with ASD in the country, with a prevalence rate of approximately 1 in 68 children. This sizable demographic presents unique educational challenges, primarily due to the diverse cognitive, sensory, and social characteristics associated with ASD. Conventional tajweed instruction, which often relies on rigid, auditory-based, and non-interactive methods, frequently fails to accommodate the varied learning needs of children on the autism spectrum. Children with ASD do not respond well to traditional teaching methods for Tajweed since they possess unique sensory processing abilities together with different attention spans and learning approaches. The research aims to solve this issue through the development of a new method which combines sensory learning techniques with adaptive technology and game-based instruction for teaching Tajweed methods adapted specifically for ASD children. The research targets evidence showing interactive educational solutions enhance systematic Quranic instruction during classes for autistic children.

LITERATURE REVIEW

Tajweed

The science of Tajweed is said to have emerged in the 4th century. The Tajweed rules that are commonly discussed are the rules of tanwin and nun sakinah, the rules of mim sakinah, various types of mad rules, the rules of mim and nun mushaddadah, the ways of waqaf and ibtida', maqtu' and mausul, the rules of tarqiq and tafkhim and the nature and makhraj of letters (Ibn Kathir 1995; 'Imad 'Ali Jamu' ah 2004; Khalid Shukry et.al 2003). Scholars have agreed on the importance of reading the Quran with tartil recitation and tajwid is among the things that affect the recitation of the Quran (al-Saghirji,1992). Tartil is a slow recitation but not too slow like tahqiq recitation. That is, pronouncing each letter with its correct makhraj without reducing the harakat of each letter and giving haq and mustahaq to each letter (the original nature of the letter and the nature that comes after it) and maintaining its tajwid (Khalid Shukry et.al2013).

Autism Spectrum Disorder and Learning Challenges

Autism Spectrum Disorder (ASD) functions as a neurological developmental condition which produces social communication difficulties together with repetitious behaviors as well as challenges in social connections. The wide range of learning difficulties among autistic children requires personalized teaching approaches, according to O'Nions (2017). Educational intervention success requires knowing the distinctive cognitive and sensory characteristics of children with ASD.

Multisensory Learning

Research indicates that learning through multiple senses provides exceptional benefits for children who have ASD. The simultaneous use of various senses allows students to enhance their ability to remember information while processing information better, according to Bulté (2016). The theory of neuroplasticity supports this approach since it demonstrates that repeated multimodal stimulation builds stronger neural connections.

Gamification in Education

Gamification represents an educational method which adds elements from games to educational settings with the goal of increasing student engagement (Dichev & Dicheva, 2017). Gamification refers to the integration of game-like elements into educational settings. Researchers have confirmed that gamified classrooms enhance motivation factors and capture information among typical students and children with neurodevelopmental differences (Deterding et al., 2011). ASD children benefit from games because these activities create controlled learning spaces that help them stay focused while lowering their feelings of anxiety.

In today's digital age, gamification holds significant potential for supporting students with Autism Spectrum Disorder (ASD). By incorporating game elements like progress bars, rewards, and leaderboards into digital learning platforms, educators can create structured and predictable environments that align with the needs of neurodivergent learners (Kapp, 2012; Whyte et al., 2015). These tools transform academic tasks into interactive, motivating experiences while reducing the anxiety often caused by social pressures and sensory overload in traditional classrooms (Parsons & Cobb, 2011). Additionally, digital platforms allow for personalized learning paths tailored to each student's pace and abilities, enhancing both engagement and outcomes (Goodwin & Highfield, 2013).

Inclusive Religious Education

The traditional structures of Islamic education failed to provide proper accommodations for children with disabilities in the past. New research indicates religious education institutions can provide inclusive programs when necessary transformations are implemented. Researchers identified three effective strategies including visual aids alongside simplified tasks along with segmenting lessons into smaller parts that benefit children with ASD according to Al-Hassan (2018). Digital pedagogic supports, respecting students' differing ways of learning (visual, auditory, and kinesthetic), as well as provision of sensory aids is recommended (Zulkifli et al., 2022). Accommodation aims at creating an equal and more productive learning process for students with learning disabilities.

Many applications and games have been developed to enhance the learning process for children with autism. However, few of these are designed effectively to engage and facilitate the learning of the Al-Quran. This gap exists largely due to a lack of guidance for software developers in creating appropriate applications and games for this purpose. Given that the majority of Malaysia's population is Muslim, teaching the Al-Quran to children with autism is a crucial area that requires greater attention. This study aims to propose a new approach by exploring the use of serious games, with a specific focus on mobile serious games, to support the Al-Quran learning process for students with learning difficulties, particularly children with severe autism. A prototype of a Quranic game has been developed to teach the basic principles of learning the Al-Quran, concentrating on Arabic letters (known as Hijaiyah letters). The goal of this Quranic game is to leverage the strengths of children with severe autism, focusing on their potential rather than solely on their challenges (Kamaruzaman et al., 2016).

METHODOLOGY

This study employed a mixed-methods design, incorporating both qualitative and quantitative data. The primary components of the intervention were:

(a) **Multisensory Approach:** Participants engaged with materials that incorporated visual, auditory, and kinesthetic elements, such as interactive Quran apps, tactile flashcards, and auditory reinforcement.
(b) **Gamification:** A custom-designed mobile game was developed, which incorporated Quranic verses and Tajweed rules. The game used visual and auditory cues to reinforce correct pronunciation and recitation, rewarding progress with positive reinforcement.
(c) **Adaptive Technologies:** Assistive tools such as speech-to-text software and custom-built adaptive interfaces were used to accommodate varying sensory sensitivities and learning preferences.

Participants

This research carefully selected its participant group to ensure the study's relevance and validity. The cohort consisted of **twenty children with an official ASD diagnosis**, aged between six and twelve, a crucial developmental window for educational intervention. These children were all enrolled in **special education programs within local Islamic primary schools**, highlighting the study's specific focus on integrating innovative methods into a unique cultural and religious context. The dual-criteria for their inclusion—a confirmed ASD diagnosis and a foundational understanding of Quranic principles—was essential. This meant the study was designed not to introduce religious concepts from scratch, but rather to evaluate how a new pedagogical framework could enhance the learning experience for a group of children who already had some exposure to the subject matter. This precise participant selection ensured the results were directly applicable to the target population and their specific educational needs.

Procedure

The program is distributed across 6 weeks with two thirty-minute sessions running each week. Assessments performed before and after the program evaluated student attention levels and their ability to remember Tajweed principles and their understanding of Quran recitation.

RESULTS

The quantitative results indicated that students improved their engagement level along with their understanding of Tajweed rules after the intervention took place. The participants who took part in the study showed better memory retention of Tajweed rules by 30%, as demonstrated through pre- and post-assessment results, while their recitation accuracy improved by 25%. Multiple respondents expressed their findings to us through qualitative feedback, which indicated that students became more immersed in Quranic recitation and teachers noted decreased anxiety levels among students in lessons.

Prototype of The Game

The I-Tajweed game prototype displays its interface as presented in Figure 1. The I-Tajweed game prototype operates as an interactive program made for children with autism to teach Tajweed principles, which cover Arabic letter pronunciation forms in Quran recitation. The game provides a welcoming interface together with vivid graphics, sound signals and interactive tasks which meet different learning preferences and sensory requirements. Through its interactive design with visual tools, touch navigation, and sound effects, the game enables autistic children to practice Tajweed rules in a stimulating manner that helps develop their concentration skills and manual abilities. Children experience a fluid learning process through an enjoyable interface that provides complete continuity for maintaining their interest during independent learning.

Figure 1: The I-Tajweed game prototype

DISCUSSION

Research outcomes demonstrate that a sensory-rich game-based strategy improves educational outcomes for ASD students within religious learning programs. The learning environment became more effective when it included visual elements, auditory aspects, and tactile interactions combined with game-based structure to address the specific education requirements of ASD students. Through the implementation of adaptive technologies, educators achieved improved flexibility regarding accommodating the unique sensory needs of their students. Due to its small participant number and brief intervention period, the study has limited effectiveness. Further research must examine the enduring impact of this method while growing the participant numbers to verify its effectiveness fully. Cultural adaptations of this methodology must be developed by autism specialists together with religious educators under the goal of refining the method.

The study findings reinforce scientific evidence about how multisensory educational settings positively affect children who have ASD. The research shows children with ASD face challenges when taught through methods that emphasize one sense or structured instruction (Brucker, 2013; Shapiro et al., 2017). The I-Tajweed game prototype delivered a multi-sensory educational design which combined visual and auditory elements with physical touch features to adapt to the particular learning needs of these children. Educational research confirms the necessity of multisensory instruction strategies for ASD children because they boost attention span and motivation and improve learning retention (Thompson et al., 2018).

The implementation of gamification enhanced learning processes by providing structured flexibility for children with ASD according to findings from Desai et al. (2019). Games deliver essential characteristics of defined objectives together with prompt feedback systems and reward mechanisms that sustain the focused engagement of children with ASD (Terlouw et al., 2021). Using this structure the game creates an environment which serves students with ASD by supporting their skills development while helping them learn emotional regulation.

The research constraints, including the brief study duration along with small participant numbers, call for continued investigation about the long-term results of this method. According to Ploog et al. (2013), it is necessary to perform research with large sample sizes and extended durations to understand the effects of technology-based interventions on children with ASD. Since the current research centered on Tajweed education, the subsequent studies must investigate the wide utilization of gamified multisensory learning across different cultural frameworks in educational institutions

through the cooperation of autism specialists and technology developers together with religious educators. Such interventions require joint efforts between specialists because this collaboration ensures adaptation to the diverse cultural needs and accessibility features as well as the sensitivity of these interventions whether within any specific context (Barrera et al., 2013).

CONCLUSION

Research on inclusive education of children with ASD benefits from this study because innovative educational methods proved effective for encouraging student participation and understanding in religious classes. The proposed framework establishes methods to link classic Quranic education with contemporary educational tools which provide children with autism better access to engaging educational opportunities. At the same time, this research offers a vital blueprint for creating inclusive religious education by integrating traditional Quranic teachings with contemporary tools. At the same time, this approach helps overcome learning barriers for children with Autism Spectrum Disorder (ASD) by providing a structured, personalized, and visually-rich experience. The framework makes religious education more accessible and engaging, empowering these students to participate fully and fostering a crucial sense of belonging and academic success within their communities.

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