EduStream : Jurnal Pendidikan Dasar

Volume 9, Number 2, 2025 pp. 214-230
E-ISSN : 2614-4417
Open Access: https://journal.unesa.ac.id/index.php/ipd/index

Integrating digital technology in language learning for students with disabilities in elementary schools: A critical systematic review

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ARTICLE INFO

Article history:
Received 09 December 2024
Acccepted 06 June 2025
Published 28 November 2025

Keywords:
Learning technology, Language learning, Disability, Elementary school education

DOI:
https://doi.org/10.26740/eds.v9n2.p214-230

ABSTRACT

This study aims to explore the integration of digital technology in language learning for students with disabilities in inclusive elementary schools. This study used systematic literature review published in the last ten years. The findings shows that iPad applications, digital-based games, and augmented reality are effective in improving reading, writing, and speaking skills for students with various disabilities, including autism, dyslexia, Down syndrome, ADHD, as well as hearing and visual impairments. Tools used include mobile applications, games, and audio-based software. This study emphasized the importance of ongoing teacher training and adequate infrastructure to optimize the use of technology in inclusive education. The results of this study have shown the evidence-based recommendations for more effective and inclusive technology integration practices in elementary schools, filling a gap in the literature regarding the role of technology in language learning for students with disabilities.

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INTRODUCTION

This systematic research focuses on the role of digital technology in supporting students with disabilities to learn a language within inclusive elementary education settings. Digital tools and resources like iPad apps, augmented reality games, audio software and ICT devices such as iPads have been used by students with disabilities including autism; dyslexia Down syndrome, ADHD sensory impairment which has improved their reading and writing skills, speaking/communication. Their timely use supports student autonomy and a sense of being involved in the learning process and diverse academic requirements. It requires a collaborative effort from community, government and school authorities; the establishment of appropriate infrastructure; continuous professional development programs for educators are all crucial factors.

It is suggested that future researchers explore the long-term influence of digital technology for language learning disability students. Second, it is necessary to support other research that investigates the comparative effectiveness of these technologies in various cultural contexts and sizes within the educational system. Additionally, there is a need to invest in the more sophisticated assessment tools that can track language skill development so tech solutions will be held accountable for meeting educational needs of students with disabilities. Qualitative studies, in form

of say the indepth interview with students, and other stakeholders including teachers and parents can provide even further insights into their experiences or perception of how they use technology to get inclusive learning thereby informing policies further enhacance best practices. However, many challenges persist, especially regarding the digital divide for students with disabilities (Hofer, Nistor & Scheibenzuber, 2021). Field observations show that the digital divide among learners is wellknown especially for students with disabilities, due to access to equipment, electricity, internet, and teacher capabilities being major concerns (Ginsburg, 2020). A report published by the Inclusive According to Education Initiative (World Bank, 2020), nearly 40% of children from remote areas in Low-Income Developing Countries were not provided with any adequate learning support. Children with disabilities are the most vulnerable and also at high risk of exclusion or dropping out through this huge interruption during COVID-19 pandemic period. Across the globe, more than 1 billion people need assistive products or devices (WHO, 2019).

We believe that, more generally, digital technologies promote the acquisition of other language impairments and facilitate access to foreign languages for students with disabilities (for example voice recognition software or interactive applications like Duolingo®and Rosetta Stone). Screen reader software can also be beneficial for students with visual impairments as it is assistive technology specifically designed to improve material comprehension and independent learning (Martiniello et al., 2022). The use of interactive multimedia such as videos and animations can increase student engagement in learning (Gan, Menkhoff & Smith, 2015). The successful integration of technology in inclusive education depends on ongoing teacher training and personalization (Marienko, Nosenko & Shyshkina, 2020), as well as adequate infrastructure such as stable internet connections and appropriate hardware (Adarkwah, 2021). Gordon, Graves & Sydoriv (2022) assert that it requires three to tango a collaborative learning environment inclusive of schools and governments as well-community stakeholders. Thus, educational technology serves as a great solution to offer wider range of access to all students.

Educational technology is important in widening the learning possibilities of students with disabilities, which allows learners to develop an array of skills and helps them achieve more independence (Clouder et al., 2019). It also has a part in eradicating educational and social differences for students with disabilities as well as the global digital divide to which there is an ever-widening gap (Newman et al. 2017). Addressing these challenges and exploiting the opportunities offered by educational technology to make learning inclusive, is a central but difficult task for scientists working in teaching as well as teachers.s

This study employs a systematic literature review to analyze the integration of digital technology in language learning for students with disabilities in elementary schools. The novelty of this study lies in its holistic approach, which integrates multiple aspects of educational technology to provide comprehensive, evidence-based recommendations for more effective and inclusive instructional practices. Unlike previous studies that have examined technology use in inclusive education more generally, this research specifically focuses on language learning, an area that requires distinct technological approaches due to the complexity of reading, writing, and speaking processes. Language skills involve phonological processing, meaning construction, and expressive communication, which are often affected by sensory, cognitive, or communicative limitations in students with disabilities. Therefore, technologies such as text-to-speech, speech-to-text, and interactive language applications are particularly essential, as they offer multimodal support, immediate feedback, and repeated practice that directly target language development

rather than general content learning, thereby addressing a critical gap in the inclusive education literature.

METHOD

This study used systematic review of the literature from the past ten years. The latest information contributes to the ongoing debate about the potential of technology to transform educational paradigms. The study primarily focuses on teaching-learning processes that utilize technology approaches that are convenient for learners to obtain a better education. The objective of this systematic literature review is to explore the field of educational technology in inclusive education with a focus on elementary schools to provide recommendations for future research. This objective will be achieved by answering the following research questions:

Q1: How is technology-based learning integrated into language learning for students with disabilities in inclusive elementary schools?

Q2: What tools are used to create technology-based learning media in inclusive elementary schools?

Q3: What types of research have been conducted related to educational technology in inclusive elementary schools?

Q4: What types of disabilities require technology as an assistive tool in language learning?

The strategy to search the literature is an essential component in the advancement of a scientific discipline (Balters et al., 2023). This significance arises from the strategy's ability to synthesize and reflect upon prior research, thereby establishing strong foundation for scientific progress (Grove et al., 2012). To conduct the literature search, the authors used Scopus with the keywords “disability AND language AND technology.” The study adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure the accuracy and validity of the literature review (Moher et al., 2009). Initially, 250 documents were identified; however, after the selection and screening process, 40 documents were included. Below is a summary of the findings from the PRISMA metadata.

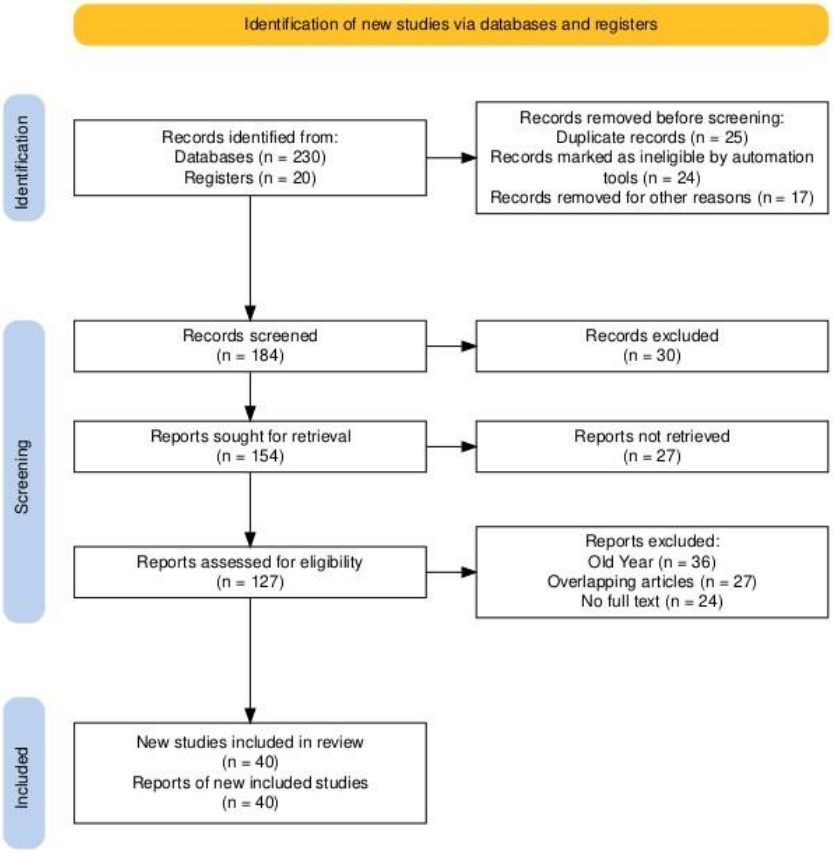

Figure 1. PRISMA flow diagram of document selection

To ensure a systematic and meaningful analysis, the selected studies were grouped into several analytical categories. The studies were classified based on (1) type of disability, (2) type of digital technology used, and (3) targeted language skills (reading, writing, and speaking). This categorization was chosen to reflect the diverse learning needs of students with disabilities and the specific technological functions required to support different aspects of language development. Grouping the studies in this way allowed for a clearer comparison of how particular technologies address specific language skills across various disability groups and supported a more structured synthesis of the findings.

Tabel 1. Summary of Selected Studies

No.	Study (year)	Genre	Tipe Disabilitas	Purpose	Type of the research	Sources
1	Wachidah et al., 2020	visual media based on ICT	Autism spectrum disorder	Improve writing skills	Research and Development (R&D)	Journal of Physics: Conference Series
2	Husni, 2013	Mobile Apilaction	Autism spectrum disorder	Getting to Know Vocabulary	Penelitian Pengembangan	*Procedia Technology*
3	Retalis et al., 2014	Puzzle Digital	ADHD	Language ability	Quantitative	*European Conference on Games Based Learning*
4	Park et al., 2019	Visual Novel	ADHD	Reading Ability	Quantitative	*Behaviour & Information Technology*

No.	Study (year)	Genre	Tipe Disabilitas	Purpose	Type of the research	Sources
5	Raodah et al., 2023	Android Application	ADHD	Reading Ability	Research and Development (R&D)	*Jurnal Inovasi Teknologi Pendidikan*
6	Nakeva et al., 2021	GraphoGame	Down Syndrome	Phonetic abilities	Quantitative	*Journal of Intellectual Disabilities*
7	Karagianni & Drigas, 2022	Digital game	Down Syndrome	Language ability	Quatitative	Technium Social Sciences Journal
8	Næss et al., 2022	iPad Application	Down Syndrome	Getting to Know Vocabulary	Quantitative	*Remedial and Special Education*
9	Park et al., 2024	VisualCamp SeeSo	Dyslexia	Reading ability	Quantitative	*Annals of Child Neurology*
10	Yen et al., 2024	UbD mind walker	Slow Learner	Language ability	Quatitative	*Asian-Pacific Journal of Second and Foreign Language Education*
11	Almgren et al., 2024	Audiobook text-to-speech (TTS) speech-to-text (STT)	Dyslexia	Writing Ability	Quatitative	*Disability and Rehabilitation: Assistive Technology*
12	Felix et al., 2017	HATLE (Computer-Assisted Learning Tool)	Down Syndrome	Speaking and writing skills	Quantitative	*British Journal of Educational Technology*
13	Hill & Flores, 2014	Low-Tech Picture-Based Communication System	Autism spectrum disorder	Speaking ability	Quantitative	*TechTrends*
14	Carezo et al., 2024	Tangible Tabletop Games	ADHD	Speaking ability	Quatitative	*Universal Access in the Information Society*
15	Vialatte et al., 2023	Mobile serious game (VisioCogLetters)	Dyslexia	Reading accuracy	Quantitative	*Scientific Reports*
16	Park et al., 2019	**Brain-Computer Interface (BCI)**	ADHD	Reading ability	Mix method	*Behaviour & Information Technology*
17	Simao et al., 2017	Serious Games	Down Syndrome	Reading and speaking ability	Quantitative	Springer International Publishing
18	Peters et al., 2021	Computer action video game (AVGs) (Fruit Ninja)	Dyslexia	Improved reading accuracy, rate, comprehension and rapid naming.	Quantitative	*Scientific reports*
19	Tosto et al, 2021	Augmented Reality	ADHD	Reading and speaking ability	Quantitative	*Virtual Reality*
20	Darrot et al., 2023	Audio software (Rapdys©) for	Dyslexia	Improve phonological	Quantitative	*BMC pediatrics*

No.	Study (year)	Genre	Tipe Disabilitas	Purpose	Type of the research	Sources
		intensive audio phonological training program		and reading skills		
21	Boyd, Hart & More, 2015	iPad dengan Aplikasi Komunikasi	Autism spectrum disorders	Speaking skills	Quatitative	*Intervention in School and Clinic*
22	Rodriguez-Cano et al., 2021	Mobile Virtual Reality (VR) video game (Wibu)	Dyslexia	Ability to listen and motivate students	Quatitative	*Sustainability*
23	Khowaja & Salim, 2019	Serious Games (SGs)	Autism spectrum disorders	Increase students' vocabulary	Quantitative	*International journal of human–computer interaction*
24	Novack, Hong, Dixon & Granpeesheh, 2019	Camp Discovery by iPad	Autism spectrum disorders	receptive language skills	Quantitative	*Behavior analysis in practice*
25	Lazo & Andrade, 2023	Augmented Reality (AR) mobile game (Educadyslexia)	Dyslexia	Improve speaking and reading skills	Research and Development (R&D)	*International Journal of Interactive Mobile Technologies*
26	Rohani, Sorensen, & Puthusserypady, 2014	kombinasi teknologi Brain-Computer Interface (BCI) dan Virtual Reality (VR)	ADHD	Academic and language skills	Quantitative	IEEE
27	Bigueras et al., 2020	Mobile game (LaroLexia)	Dyslexia	Increase reading performance	Mix method	*International Journal*
28	Lopata et al, 2016	Computer-Based Intervention	Autism spectrum disorder	Reading and emotional abilities	Quantitative	*Research in Autism Spectrum Disorders*
29	Pellecchia	TeachTown based Computer-Based Intervention	Autism spectrum disorder	Improve language, cognitive, and academic skills	Quantitative	*Journal of the American Academy of Child & Adolescent Psychiatry*
30	Jun, Bakar & ChePa, 2023	DysPReX: A Game-based Reading Tool for Children with Dyslexia.	Dyslexia	To help the dyslexics learn spelling and reading in fun	Research and Development (R&D)	*Multidisciplinary Applied Research and Innovation*
31	Kamali-Arslantas et al., 2023	Web-Based Assistive Technology	Visual impairment	Increase students' vocabulary knowledge	Quatitative	*Assistive Technology*
32	Allen, Hartley & Cain, 2015	Apple iPad	Autism spectrum disorder	Language skills in	Quantitative	*Frontiers in psychology*

No.	Study (year)	Genre	Tipe Disabilitas	Purpose	Type of the research	Sources
				acquiring new words		
33	Chang & Chuang, 2020	iPad & Video modelling	Autism spectrum disorder	Writing ability	Quantitative	*Journal of Visual Impairment & Blindness*
34	Hurwitz & Vanacore, 2022	Lexia Core5 Reading Program (Core5) as online instructional program	Dyslexia	To improve phonological awareness, phonics, vocabulary and comprehension.	Quantitative	*Journal of Learning Disabilities*
35	Meinzen-Derr, 2019	Aplikasi TouchChat HD dengan WordPower	Deaf of hearing	Speaking skills	Quantitative	*International journal of pediatric otorhinolaryngology*
36	Chebli, Lanovaz & Dufour, 2017	teknologi tablet	Autism spectrum disorder	single word receptive identification	Quantitative	*Journal of Special Education Technology*
37	Kamei-Hannan et al., 2020	Aplikasi Reading Adventure Time!	Visual impairment	Reading ability	Quantitative	*Journal of Visual Impairment & Blindness*
38	Papadopoulou et al., 2022	Social robot NAO	Slow Learner	Improvements in both groups in cognition skills (decoding, phonological awareness and reading comprehension)	Quantitative	*Children*
39	Nahar, Sulaiman & Jaafar, 2021	Bangla Braille Learning Application - BBLA	Visual impairment	Recognize and spell Braille	Quatitative	*Interactive Learning Environments*
40	Mod et al., 2022	TouchChat HD dengan WordPower	Deaf of hearing	Communication skills	Quantitative	*Deafness & Education International*

RESULTS

Q1: Integration of Technology-Based Learning in Language Learning for Students with Disabilities in Inclusive Elementary Schools.

This study includes various types of digital technologies implemented to support language learning for students with disabilities in inclusive elementary schools. The types of technologies used vary and are tailored to the specific type of disability. The majority of the research focuses on students with autism, dyslexia, Down syndrome, ADHD, as well as hearing and visual impairments.

Research on students with autism often utilizes iPad applications, ICT-based visual media, and tablet-based communication systems to enhance their communication and language skills. These technologies have shown success in improving speaking, writing, and vocabulary skills (ID1, ID2, ID13, ID21, ID23, ID24, ID28, ID29, ID32, ID33, ID36). For example, iPad applications and video modelling have proven effective in enhancing speaking skills (ID21, ID32). Below is an example of a game-based learning medium used to improve the vocabulary of autistic students in inclusive elementary schools.

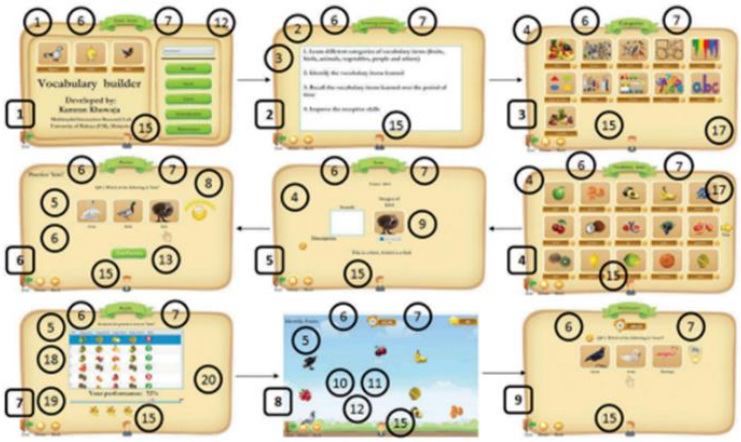

Figure 2. Vocabulary Builder (ID23)

The technology for dyslexic students involves mobile applications, augmented reality-based games, and audio-based software. Research showed that technologies like GraphoGame, audiobooks, and digital games help improve reading, writing, and phonetic skills (ID9, ID11, ID15, ID18, ID20, ID22, ID25, ID27, ID30, ID34). For instance, the use of mobile games and augmented reality applications has proven effective in improving reading accuracy and speaking skills (ID15, ID20). Here is an example of a mobile virtual reality development used to improve listening skills and learning motivation for dyslexic students in elementary schools.

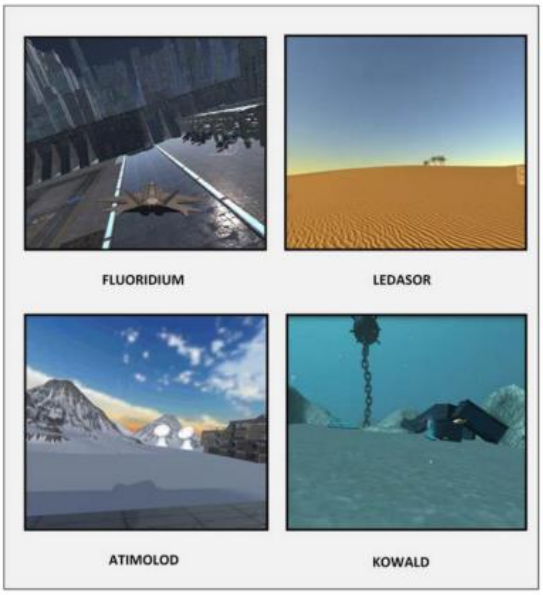

Figure 3. Mobile Virtual Reality (ID22)

The technology for ADHD includes mobile applications and games designed to improve academic and language skills. Research shows that technologies like Brain-Computer Interface (BCI) and digital games significantly improve reading and language skills (ID3, ID4, ID5, ID14, ID16, ID19, ID26). Technology for students with Down syndrome often focuses on improving phonetic and language skills through specially designed applications and games. Studies indicate that applications and games like GraphoGame and digital games are effective in developing speaking and reading skills (ID6, ID7, ID8, ID12, ID17). Here is an example of game-based learning media development to improve speaking and writing abilities in elementary school students with Down syndrome in inclusive schools.

Figure 4. HATLE graphical user interface (ID12)

The use of Web-based learning tools and audio-based are both applications utilized by students with vision and hearing impairments. The studies have showed that students with vision and hearing impairments can get the benefit of text-to-speech programs and vocabulary (ID35, ID37, ID39, ID40). The research about slow learners focuses on how technology can help with learning a language in general where slow learners might benefit greatly from digital games and programs to improve language and reading comprehension (ID10, ID38). Here is the illustration of a robot developed to assist slow learners in improving their phonological awareness, reading comprehension, and coding skills.

Figure 5. The humanoid social robot NAO (ID38)

In conclusion, there has been a noticeable improvement in the teaching of kids with disabilities in inclusive elementary schools as a result of various digital tools. These tools help general academic and social growth while also improve speaking, reading, writing, and communication skills. The best results can only be obtained by selecting technologies that are specifically designed to meet the demands of each impairment. It is possible to strengthen inclusive learning methods and better help students with special needs by implementing pertinent and sustainable technologies.

Q2: Tools for Developing Technology-Based Learning Media in Inclusive Elementary Schools

This report highlights the various tools used in inclusive elementary schools to develop technology-based learning materials. Research has shown that mobile apps, which are commonly used to help children with disabilities improve their reading and writing skills (ID2, ID5, ID7, ID9, ID15, ID20, ID22, ID25, ID27, ID36). computer games are popular and have proven to be a powerful way to enhance speaking, reading, and phonetic abilities in these students. ID1, ID3, ID6, ID14, ID16, ID18, ID23, ID28, ID30). Reading and writing skills are also greatly aided by visual media, such as digital books and image-based programs (ID4, ID10, ID11, ID13, ID21, ID33, ID37).

To create more interactive and engaging learning experiences, some studies has introduced augmented reality (AR) and brain-computer interface (BCI) technologies (ID19, ID26). Numerous studies have shown that iPad applications effectively improve language and communication abilities (ID21, ID24, ID32, ID35, ID40). To enhance learning for students with hearing and vision impairments, technologies like braille-based applications, speech-to-text (STT) applications, and text-to-speech (TTS) audiobooks are used (ID11, ID31, ID37, ID39). As a result, the study's tools included tablet-based technologies, digital games, visual media, AR, BCI, and mobile apps effectively improve language proficiency and promote inclusive education for children with impairments.

Q3: Types of Research Conducted on Learning Technology in Inclusive Elementary Schools

This study has used various designs of research, including qualitative, quantitative, and research and development (R&D) approaching on technology learning in inclusive elementary

schools. In order to improve language skills for students with impairments, R&D is important to the development of digital games, mobile applications, and ICT-based visual media (ID1, ID5, ID25, ID30). The most of studies examining the efficacy of tools such as GraphoGame (ID6) for improving phonetic skills in children with Down syndrome, visual novels (ID4) for improving reading skills in children with ADHD, and mobile applications (ID9, ID18) for improving reading and writing in children with dyslexia are dominated by quantitative research. To assess learning outcomes, these studies usually collect numerical data and do statistical analysis.

The design of qualitative research has explored the experiences and perspectives of educators and learners in using these tools, such as iPads to help autistic children (ID21) improve their communication skills and TTS (text-to-speech) and STT (speech-to-text) applications for dyslexic children (ID11) with their writing. In order to provide a complete picture of the efficacy of technology, some related studies used qualitative and quantitative components for example, BCI was found that it has been beneficial in helping children with ADHD (ID16) and dyslexia (ID27) read better when used in conjunction with mobile games. Consequently, it may be said that research that concentrate on different techniques and approaches tend to use quantitative methodologies. Together, these studies aid in the creation and assessment of efficient learning tools that promote inclusive education in elementary schools.

Q4: Types of Students with Disabilities Utilizing Technology as a Learning Aid in Language Education

This research includes various digital technologies used for language learning for students with disabilities in elementary schools. The integrated digital technologies vary according to different types of disabilities. Most studies focus on autism, dyslexia, Down syndrome, ADHD, and hearing and vision impairments. Autism (ID1, ID2, ID13, ID21, ID23, ID24, ID28, ID29, ID32, ID33, ID36): Research on autism often uses technologies like iPad applications and ICT-based visual media to improve communication and language skills. Examples include using iPad apps for speaking skills (ID21) and video modeling technology and tablet-based communication (ID13, ID32).

Dyslexia (ID9, ID11, ID15, ID18, ID20, ID22, ID25, ID27, ID30, ID34): Technologies for dyslexia often involve mobile applications, augmented reality-based games, and audio-based software. Studies using GraphoGame and mobile applications for reading and writing skills show positive results in helping students with dyslexia improve their academic abilities (ID9, ID18). Down Syndrome (ID6, ID7, ID8, ID12, ID17): Technologies for Down syndrome frequently focus on developing phonetic and language skills. Examples include applications and games designed to improve speaking and reading abilities (ID6, ID12).

ADHD (ID3, ID4, ID5, ID14, ID16, ID19, ID26): Technologies for ADHD include mobile applications and games designed to improve reading and academic skills. Studies such as the use of Brain-Computer Interface (BCI) and digital games demonstrate effectiveness in improving language and academic skills (ID16, ID26). Hearing and Vision Impairments (ID35, ID37, ID39, ID40): Research on hearing and vision impairments often involves audio-based applications and web-based learning technologies. Examples include the use of text-to-speech vocabulary and communication applications (ID35, ID40). Slow Learners (ID10, ID38): Research on slow learners focuses on technologies that can support general language learning, such as digital games and applications to improve reading and language skills (ID10, ID38).

This research shows that adapting and integrating technologies according to the type of disability can significantly improve communication, reading, writing, and academic skills. Therefore, the implementation of relevant technologies and further research on their effectiveness can strengthen inclusive learning practices and provide better support for special education needs in elementary schools.

DISCUSSION

The use of technology in language learning for students with disabilities has shown very promising potential in enhancing the learning process. Technologies such as iPad applications and audio-based software have helped students with disabilities better understand the material (McMahon & Walker, 2019). But, to truly realize the engine power of technology, it must be grounded in clear theory explaining what needing aspect is being addressed autistic needs come out different then dyslexic needs and communication forums are more effective for autism forum schools while phonic-based techniques perform better with lineage from basal readers. This will make the technology more tailored and useful for supporting learning in students with disabilities. This translates into a moving average of between 4 and six months which is supported by Zhang et al. (2022) which underscored the value of theory in its design process. Students achieve better academic performance with more theory guided technology integration (Hubbard 2018).

Regarding the e-learning platform used, this study presents different free and paid learning platforms that have been successfully applied for GBID. The existence of relatively wide range tools serves as demonstration that we can map different types learning experiences even if most current systems lean towards gamification rather than more elaborate educational games (Almeida & Simoes, 2019). Having aspects of gaming on these platforms is a positive attempt to increase student engagement in learning. Most educational games studies are quantitative, with few coupled to qualitative approaches (Hartas 2015). Methods such as pre-post surveys, questionnaires, interviews and skill tests offer key insights into the efficacy of educational games. The results showed that gamification increases learning motivation (Alsawaier, 2018; Sanchez et al., 2020) and has no negative consequences on it. This demonstrates just how much gamification could change the way students learn.

Another observed phenomenon is the increased awareness of teachers' competencies in developing educational games. Although teachers' computers are often used for administrative purposes, there is a great opportunity to use them more in teaching and learning activities (Ghavifekr et al., 2016). Collaboration between teachers and technologists can make the development of interactive multimedia suitable for students' individual characteristics go faster Research by McKnight et al. The study of Gill and Sharma, (2019) emphasized the significance collaboration plays when it comes to integrating technology for enhancing teaching learning process leading to improved student education results. Future research might focus on integrating learning theories into the design of new technology, exploring more digital tools that can support complex educational games from different disciplines and holding in-depth assessments to determine what other instructional e-learning interventions are associated with improved learning outcomes. Furthermore, this will enable closer cooperation between technology experts and teachers to facilitate the creation of more engaging interactive multimedia.

CONCLUSION

This systematic review emphasized the crucial role that digital technology plays in enabling language learning for students with disabilities within inclusive elementary schools. Digital technologies such as iPad applications, augmented reality-based games, different audio software and ICT devices have been found quite effective in enhancing the reading writing speaking communication skill of these disabilities i.e. autism to dyslexia from Down syndrome to ADHD, hearing vision impairments. The application of these technologies not only enhances the academic performance but also fosters self-sufficient and active participation in students during learning. In addition, the success of technology integration in inclusive education largely relies on a well-targeted teacher training system appropriate infrastructure and collaborative support among schools, government and community. Since each disability has its features, it is essential to keep developing technologies according to them aiming inclusive learning practices and improving the availability of education for everyone. This conflicts with the finding that other moderators measured shorter term impact instead of including longer-term differences. Future researchers are encouraged to conduct studies assessing if longer-term use of digital technology in learning language is effective for students with disabilities. Moreover, the effectiveness of these technologies in different cultural and educational system contexts remains to be explored and their suitability and adaptability needs further validation in future research. It is also important to evaluate what technology we are using and develop more comprehensive assessment tools to determine the extent in which language skills develops because of that piece of tech. In addition, use of qualitative methods to follow up with students, teachers and parents was able to explain their experiences or perceptions about the technology-based inclusive learning process toward developing better policy-making practices in future.

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