Journal of English Teaching, Literature, and Applied Linguistics
ISSN 2614-5871
Vol. 9, No. 1; 2025
Published by English Language Education Department of UMG
http://dx.doi.org/10.30587/jetlal.v9i1.9432

Challenges In Teaching English Vocabulary To Special Needs Students Through Technology

Sheilla Marfuatul Jannah
Universitas Muhammadiyah Surakarta
Indonesia
A320210235@student.ums.ac.id

Nur Hidayat
Universitas Muhammadiyah Surakarta
Indonesia
nh249@ums.ac.id

Received: 15th January 2025 Accepted: 28th Janurary 2025 Published:20th February 2025

Abstract

The development of digital technology in recent decades has influenced English education, especially in teaching vocabulary. Several previous studies have been investigated that focus on teaching vocabulary challenges through technology. However, all of those studies do not touch on the use of technology in special needs students. This study investigated the teachers' challenges in developing students with special needs through technology. A qualitative approach with a case study design was used in this study. This study involved six EFL female teachers who taught students with special needs in one of the inclusive schools in Central Java, Indonesia, with several criteria, including having at least five years of experience in learning by using technology for teaching children with special needs, one of which is in the context of teaching vocabulary to students with special needs themselves. A semi-structured interview was designed to collect the data to obtain detailed information about teachers' barriers to using technology to develop students with special needs vocabulary. Thematic analysis was conducted to analyze the qualitative data in some steps: transcription of the interviews, identification of the main themes, coding, categorizing the themes, and making a conclusion. The study's findings indicated that teachers faced three main challenges: students' concentration, engagement, and language.

Keywords: Teachers' Challenges; English Vocabulary, Special Needs Students; Technology Integration; Central Java.

1. Introduction

The development of digital technology in recent decades has had many positive impacts on life, one of which is in the world of education. Technology is beneficial for teachers in delivering learning materials and communicating with their students (Beardsley et al., 2021; Hidayat, Setiawan, et al., 2023; Mahmood, 2021; Santos & Castro, 2021). Technology makes the teaching-learning process in the classroom more enjoyable (Goffe & Sosin, 2005; Haleem et al., 2022; Szymkowiak et al., 2021). It also makes the students more active and cooperative in the teaching-learning process. Moreover, it assists them in developing their language learning, especially vocabulary (Arifani et al., 2020; Hao et al., 2021; Zakian et al., 2022).

Technology use in teaching vocabulary has been investigated in several studies (Bashori et al., 2024; Tai et al., 2022; Xodabande & Atai, 2022; Yu et al., 2022). All of those studies describe that the use of technology in English teaching supports them in developing their vocabulary. Moreover, it also develops their cognitive and English achievement (Bernacki et al., 2020; Hanham et al., 2021). However, the use of technology in the English teaching-learning process also provides challenges such as the unreadiness of teacher and learners in using technology (Hidayat, 2022; Metruk, 2022; Taghizadeh & Basirat, 2024), internet connection and facilities (Emelogu et al., 2022; Hidayat, Afdholy, et al., 2023) and time management (Hidayat, Afdholy, et al., 2023; Zhang et al., 2021). However, none of those studies touch on the use of technology in special needs students, while students with special needs require more attention.

Moreover, teaching an inclusive class with special needs students is more challenging. Therefore, the studies explore the teachers' challenges in teaching special needs students, which is essential.

This study aims to identify and analyze teachers' difficulties in using technology to improve the vocabulary of students with special needs. By understanding these barriers, it is hoped that this research can provide insight into the factors that hinder the development of technology in inclusive education. In addition, the findings of this study are also expected to be relevant for educational institutions and the government to support teachers in integrating technology into more effective learning in order to improve the quality of understanding of students with special needs.

Teaching Vocabulary through Technology

In recent years, the use of technology in English language learning, especially in vocabulary learning, has increased rapidly. Technology allows for a more interactive and adaptive approach to learning, which can be adapted to students' individual needs (Alam, 2023; Cui et al., 2018; Singh & Kaunert, 2024). It also makes the classroom atmosphere more fun and conducive (Goffe & Sosin, 2005; Haleem et al., 2022; Szymkowiak et al., 2021). The use of technology in English learning is claimed to improve students' vocabulary and academic performance (Bernacki et al., 2020; Hanham et al., 2021; Zakian et al., 2022).

MALL or CALL-based technology has positively affected students' vocabulary development (Arifani et al., 2020; Çakmak et al., 2021; Katemba, 2019; Weisi et al., 2024). By using this approach, students are more flexible and independent in learning new vocabulary without any time and place restrictions. In addition, multimedia-based technologies such as animated videos enrich students' experience in learning vocabulary. He (2023) and Reynolds et al. (2022) revealed that using videos can aid in learning and retaining incidental vocabulary. Furthermore, using animated videos combined with context-based learning strategies effectively attracts young learners' attention and improves vocabulary acquisition, especially verbs and adverbs (Minalla, 2024).

However, those various studies still have not touched on the use of technology for vocabulary learning for students with special needs, even though it has made a great contribution, especially in improving the quality of education for children with special needs.

Teachers' Challenges in Teaching Students with Special Needs

Several studies have been investigated to analyze the challenges teachers face in meeting students' special needs. Kaur and Salian (2024) conducted a pilot study investigating the teachers' barriers to implementing inclusive education in India. They find that the teachers face several barriers, such as a lack of specialized training, insufficient support services, and inadequate teaching materials. Donaire et al. (2024) explore the teachers' experiences in teaching special needs students through qualitative study in the Philippines. They point out that the teachers face several difficulties during the teaching-learning process, such as addressing reading issues, limited school activities and facilities, time constraints, and the pressure to submit immediate reports. Tayco and Motus (2024) analyze the teachers' experience in teaching students' special needs. They identified five challenges faced by teachers, including the delivery of instruction, sudden shift of pedagogy, limited resources, lack of knowledge and time, lack of parental participation, and heavy workload. All the previous studies identified several challenges faced by the teachers in the special needs class. It indicates that teaching special needs students is challenging and needs more attention. However, teachers' challenges in teaching English vocabulary using technology in special needs students' classes do not get much attention. Meanwhile, the use of technology in teaching language is increasing. Moreover, it will be more challenging when the teachers teach foreign languages through technology to students with special needs.

Therefore, it is essential to conduct research which digs deeper on the teachers' challenges in developing students' with special needs vocabulary through technology. To accomplish that aim, the following research question is provided by the researcher: What are the teachers' main challenges in teaching vocabulary using technology in special needs students' classes?

2.Method

This research used a qualitative approach with a case study design to explore in depth the challenges faced by teachers in vocabulary learning using technology for students with special needs. The qualitative design was chosen because this study is expected to understand the subjective perspectives of teachers, as well as the factors that influence their success in integrating technology into vocabulary learning.

The participants in this study were EFL teachers who teach students with special needs in one of the inclusive schools in Central Java, Indonesia. The criteria for selecting participants were teachers with at least five years of experience in learning by using technology for teaching children with special needs, one of which is teaching vocabulary to students with special needs. By selecting experienced participants, this study was able to collect rich and in-depth data on the challenges they faced and the strategies they used. A total of six female teachers have experience teaching special needs students for more than ten years, and one has experience teaching mentally disabled students from 2015 until now.

The main instrument in data collection was a semi-structured interview designed to obtain detailed information about teachers' barriers to using technology. The interview consisted of several main questions covering aspects of the challenges they faced when teaching vocabulary using technology (teachers' ways in teaching, technology availability,

students' motivation, engagement, students' interaction, and students' development during the teaching-learning process) and their strategies for dealing with these challenges. Data collection was carried out in stages. It started with the researcher approaching the principal to get permission to conduct research at the school. Afterward, interviews were conducted individually with each teacher in a conducive and comfortable atmosphere so that participants could talk openly about their experiences. Each interview lasted about 10-15 minutes and was recorded to facilitate transcription and data analysis.

The data obtained was analyzed using the thematic analysis method. The first step in the analysis was verbatim transcription of the interviews to ensure data accuracy. After that, the researcher conducted repeated readings to identify the main themes that emerged related to teachers' difficulties in learning using technology. Relevant codes were then grouped into thematic categories: technology skills, technical support, preparation time, and infrastructure challenges. This analysis was conducted manually with a qualitative perspective in mind to keep the interpretation of the findings contextualized.

3. Findings and Discussion

Based on the interview results from six EFL teachers, the researcher categorized them into three themes: students' concentration, engagement, and digital tools.

Students' Concentration

Teacher 1: "My main challenge in teaching vocabulary is keeping the students focused on the video or learning materials during the teaching-learning process. Many of them have special needs, especially in attention deficit hyperactivity disorder (ADHD); thereby, they are easily distracted by small things such as voice, movement, or lamps. Moreover, the use of laptops often becomes a distraction. They are more interested in focusing on the keyboard, mouse, or other tools provided on the screen." (T1)

Teacher 3: "To keep my students' attention on the screen is difficult for me. Most of them have short attention spans and get bored when asked to focus on videos or pictures on a laptop or computer. Some students are more interested in other visual aspects such as button color in laptop or mouse lamp than to the learning materials." (T3)

The results of the interviews with the teachers indicated that the first and third teachers had challenges with student concentration. They had difficulty maintaining students' concentration and focusing on learning for a long time. This is because the majority of the students have special needs in attention deficit hyperactivity disorder (ADHD). In addition, when learning was done using technology such as laptops, they were easily distracted by other things that were not related to learning, such as sound, movement, keyboard color, and mouse lamp.

Students' Engagement

Teacher 2: "My challenge is how to make my students more active in the teaching-learning process. When I ask questions, some of them are silent. Sometimes, they do not respond to my instructions. Technology does help to make the visualization of learning materials more interesting and sophisticated. However, it does not automatically increase their engagement in the teaching-learning process. We need to apply a personal approach to make them feel more comfortable." (T2)

Teacher 6: "One of the biggest challenges is how to make them more active in the teaching-learning process. Although I have used several interactive media, such as video and animation, some students are still passive. They are more likely to be an audience than active participants. Even though technology assists me in creating interactive learning materials and media and making the learning atmosphere more interesting, it does not guarantee that it helps them to be more active."(T6)

The interview results indicated that one of the main challenges in teaching English vocabulary through technology to students with special needs was providing a comfortable learning atmosphere that encourages students to engage in learning. Although the English teacher stimulated them by delivering questions and using technology to visualize the materials, they were still inactive in the teaching-learning process. Moreover, the teachers used technology, including interactive media, videos, and animations, to make the teaching-learning process more interesting, but it did not make the students more active in the teaching-learning process. Most of them are passive and only accept the materials without participating a lot. They realized that the personal approach is essential to establishing a connection and providing a comfortable atmosphere for students with special needs.

Language

Teacher 4: "My major challenge is language. English is a foreign language in my class, and most of them are not familiar with it. They are used to using Indonesia in their daily life and in the class. All communication and activities are using Indonesia. Although I combined the use of technology and games in teaching vocabulary in my class, most of them still find it difficult to understand. Additionally, it will be more challenging for students who have communication disorder or language delay." (T4)

Teacher 5: Many digital learning materials, interactive media, and games are used to teach English vocabulary. However, it is still difficult for me to help them in memorizing English vocabulary. It is caused by language differences. They are still unfamiliar with the words. Additionally, they are never used in daily communication, making them difficult to memorize." (T5)

The following teacher's challenge was a language barrier. English is a foreign language for the students. In the daily activities and teaching-learning process, they used Indonesian. It made understanding and memorizing English words difficult, especially for those with communication disorders and language delays. This challenge is getting more difficult because of the lack of exposure and English use outside the class. As a consequence, their ability to develop

This study aims to identify and analyze the teachers' challenges in developing students with special needs English vocabulary through technology. The result of this study finds three main challenges in developing the English vocabulary of special needs students, including students' concentration, engagement, and language.

In developing English vocabulary for students with special needs, the teacher's first challenge is students' concentration. Students with special needs end up having a limitation in maintaining their focus during the teaching-learning process. Technology such as video and interactive media multiplies their attention because of the interesting visual view. It indicates that in teaching students with special needs, the teachers need to have a simple technology design and focus more on the learning materials customized to the specific students' needs to support effective learning. It aligns with the previous studies by Maryanti et al. (2022) and Posey and Lyons (2024), which indicated that customizing learning materials to address the special needs of students with disabilities is essential. Moreover, Teachers' ability to develop learning materials adapted to the needs of students with disabilities determines the effectiveness of learning (Arpacık et al., 2024; Zulkifli et al., 2022).

The second main challenge is students' engagement. Although technology has a big potential to attract students' interest, teachers often face difficulties consistently keeping students engaged with special needs. Several factors, such as the complexity of learning materials and lack of interaction and personalization, can inhibit their engagement during the teaching-learning process. The direct interaction with the teachers and classmates is essential for students with special needs because they need more support and attention personally to understand a new concept. Aspelin et al. (2021) and Gaitas et al. (2024) assert that positive interaction between them can enhance to social inclusion and acceptance which is essential for their development in the teaching-learning process. Although technology provides interest learning material, it is not always effective in offering personalization level that is need by them. Without discussion opportunity and feedback, the students feel isolated which decrease their willing to participate actively in teaching-learning (Harunasari & Halim, 2019; Tseng & Er, 2024). To what extend the technology can be used to be customized to students' the learning styles can affect the students' engagement in the classroom. Every student with special needs has unique way in learning and technology sometimes technology cannot be personalized to them. It can hinder the effectiveness of the teaching-learning process. Moreover, it will lead to decrease in their motivation and interest in joining the vocabulary learning. Jordan et al. (2009) highlight that students with special needs often struggle with the complexity of learning materials. Moreover, those who have autism often have difficulties concentrating and involve in classroom activities during technology-based learning (Bachtsis et al., 2024; Khowaja et al., 2021).

The last significant challenge is the language factor. Many students with special needs have difficulties understanding the basic concept of English. They are not familiar with it in their daily life. Moreover, most teachers use Indonesian as a language of instruction in classroom activities. Although the use of Indonesian can assist them in explaining the teaching material, it can limit their exposure on English; thereby they are not enough to be exposure to English vocabulary. Over-dependence on Indonesia as language of instruction in the classroom can slow down the process of mastering English vocabulary (Wulandari et al., 2021). Additionally, some students have communication disorders and language delays, which add to the teachers' load. Students with language delay and communication disorder often difficulty to express and understand the vocabulary that be taught by the teachers. Bobzien et al. (2015) and Liu et al. (2018) emphasized that students with communication disorders often struggle to memorize new vocabulary. The teachers need to provide positive environment that support more inclusive communication by communication such as pictures, word cards or technology which help them in conveying their understanding. Stewart (2009) points out that most students with special needs, especially those from non-native speakers, experience misunderstandings of basic English concepts.

4. Conclusion

Based on the findings, it can be concluded that teachers face three main challenges in teaching English vocabulary through technology for students with several needs, including students' concentration, engagement, and language. Although technology helps teachers make the teaching-learning process more interesting, it does not run well for students with special needs. It is essential to highlight that the use of technology as a learning supporting tool for them needs to be followed by a holistic approach.

Although this study has several implications for teachers, stakeholders, and educational policymakers, it also has several limitations. First, this study only investigates from teachers' perspective without involving students' participation, whereas it is essential to explore. Second, this study uses qualitative research with interviews as the main data collection instrument. The next research can conduct mixed methods. Lastly, the participants of this study were only six female teachers from one of the inclusive schools in Central Java, Indonesia. It would be better for future research to conduct similar research with large participants of different genders and areas or other countries.

5. References

Alam, A. (2023). Harnessing the Power of AI to Create Intelligent Tutoring Systems for Enhanced Classroom Experience and Improved Learning Outcomes. In Lecture Notes on Data Engineering and Communications Technologies (Vol. 171, pp. 571–591). https://doi.org/10.1007/978-981-99-1767-9_42

Arifani, Y., Hidayat, N., Mulyadi, D., & Wardhono, A. (2020). Enhancing eap learners' vocabulary acquisition: An investigation of individual sms-based reporting activities. Teaching English with Technology, 20(5), 125–146. https://tewtjournal.org/download/8-enhancing-eap-learners-vocabulary-acquisition-an-investigation-of-individual-sms-based-reporting-activities-by-yudhi-arifani-nur-hidayat-dodi-mulyadi-and-agus-wardhono/?wpdmdl=1278&refresh=67707d72cd33f1735425394

Arpacık, Ö., Kurşun, E., & Göktaş, Y. (2024). Design considerations of interactive multimedia learning materials for students with special needs. Study of cases. Education and Information Technologies, 29(5), 6163–6187. https://doi.org/10.1007/s10639-023-12063-2

Bachtsis, R., Perifanou, M., & Economides, A. A. (2024). Challenges Faced by Students with Special Needs in Primary Education during Online Teaching. Education Sciences, 14(3). https://doi.org/10.3390/educsci14030220

Bashori, M., van Hout, R., Strik, H., & Cucchiarini, C. (2024). 'Look, I can speak correctly': learning vocabulary and pronunciation through websites equipped with automatic speech recognition technology. Computer Assisted Language Learning, 37(5–6), 1335–1363. https://doi.org/10.1080/09588221.2022.2080230

Beardsley, M., Albó, L., Aragón, P., & Hernández-Leo, D. (2021). Emergency education effects on teacher abilities and motivation to use digital technologies. British Journal of Educational Technology, 52(4), 1455–1477. https://doi.org/https://doi.org/10.1111/bjet.13101

Bernacki, M. L., Greene, J. A., & Crompton, H. (2020). Mobile technology, learning, and achievement: Advances in understanding and measuring the role of mobile technology in education. Contemporary Educational Psychology, 60, 101827. https://doi.org/https://doi.org/10.1016/j.cedpsych.2019.101827

Bobzien, J. L., Richels, C., Schwartz, K., Raver, S. A., Hester, P., & Morin, L. (2015). Using repeated reading and explicit instruction to teach vocabulary to preschoolers with hearing loss. Infants and Young Children, 28(3), 262–280. https://doi.org/10.1097/IYC.0000000000000039

Çakmak, F., Namaziandost, E., & Kumar, T. (2021). CALL-Enhanced L2 Vocabulary Learning: Using Spaced Exposure through CALL to Enhance L2 Vocabulary Retention. Education Research International, 2021. https://doi.org/10.1155/2021/5848525

Cui, W., Xue, Z., & Thai, K.-P. (2018). Performance Comparison of an AI-Based Adaptive Learning System in China. Proceedings 2018 Chinese Automation Congress, CAC 2018, 3170–3175. https://doi.org/10.1109/CAC.2018.8623327

Donaire, R. M., Nalig, D. A., Camsa, D. E. F., Geromiano, J., & Cagape, W. E. (2024). Perspectives of Special Education Teachers on Overcoming Challenges in Mainstreaming Practices: A Qualitative Study. EPRA International Journal of Multidisciplinary Research (IJMR), 10(5), 315–319. https://doi.org/10.36713/epra16838

Emelogu, N. U., Nwafor, C. K., Chigbu, G. U., Okoyeukwu, N. G., & Eze, K. O. (2022). Awareness, proficiency and challenges in the use of emerging technologies by ESL university lecturers in the post COVID-19 ERA. Cogent Education, 9(1), 2084962. https://doi.org/10.1080/2331186X.2022.2084962

Goffe, W. L., & Sosin, K. (2005). Teaching with Technology: May You Live in Interesting Times. The Journal of Economic Education, 36(3), 278–291. https://doi.org/10.3200/JECE.36.3.278-291

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. Sustainable Operations and Computers, 3, 275–285. https://doi.org/https://doi.org/10.1016/j.susoc.2022.05.004

Hanham, J., Lee, C. B., & Teo, T. (2021). The influence of technology acceptance, academic self-efficacy, and gender on academic achievement through online tutoring. Computers & Education, 172, 104252. https://doi.org/https://doi.org/10.1016/j.compedu.2021.104252

Hao, T., Wang, Z., & Ardasheva, Y. (2021). Technology-Assisted Vocabulary Learning for EFL Learners: A Meta-Analysis. Journal of Research on Educational Effectiveness, 14(3), 645–667. https://doi.org/10.1080/19345747.2021.1917028

He, F. (2023). Investigating the Effects of Different L2 Caption Types on Young Learners' Incidental Vocabulary Learning. ACM International Conference Proceeding Series, 156–162. https://doi.org/10.1145/3606094.3606134

Hidayat, N. (2022). Online Teaching during the Covid-19 Crisis in Indonesia: Is It Effective? International Journal of Social Learning (IJSL), 2(3), 285–296. https://doi.org/10.47134/ijsl.v2i3.146

Hidayat, N., Afdholy, N., & Arifani, Y. (2023). The effectiveness and challenges of online teaching of EFL teachers in the COVID-19 crisis. The International Journal of Humanities Education, 22(1), 95–114. https://doi.org/10.18848/2327-0063/CGP/v22i01/95-114

Hidayat, N., Setiawan, S., & Anam, S. (2023). Do EFL Teachers' Digital Literacies Reflect Sociocultural Frameworks during Their Online Professional Development? Language Related Research, 14(1), 193–217. https://doi.org/10.52547/LRR.14.1.8

Jordan, A., Schwartz, E., & McGhie-Richmond, D. (2009). Preparing teachers for inclusive classrooms. Teaching and Teacher Education, 25(4), 535–542. https://doi.org/10.1016/j.tate.2009.02.010

Katemba, C. V. (2019). Students' vocabulary enhancement at grade 10: A comparative study using CALL & MALL in Indonesia. CALL-EJ, 20(1), 87–114. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062511828&partnerID=40&md5=43bee4edd5a08787f6e8236d1b14f9f3

Kaur, R., & Salian, R. H. (2024). Teacher perspectives and barriers in implementing inclusive education for Indian children with special needs: A pilot study. British Journal of Special Education, n/a(n/a). https://doi.org/https://doi.org/10.1111/1467-8578.12558

Khowaja, K., Al-Thani, D., Abdelaal, Y., Hassan, A. O., Mou, Y. A., & Hijab, M. H. (2021). Towards the mixed-reality platform for the learning of children with autism spectrum disorder (Asd): A case study in qatar. Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 12790 LNCS, 329–344. https://doi.org/10.1007/978-3-030-77414-1_24

Liu, X. L., Zahrt, D. M., & Simms, M. D. (2018). An Interprofessional Team Approach to the Differential Diagnosis of Children with Language Disorders. Pediatric Clinics of North America, 65(1), 73–90. https://doi.org/10.1016/j.pcl.2017.08.022

Mahmood, S. (2021). Instructional Strategies for Online Teaching in COVID-19 Pandemic. Human Behavior and Emerging Technologies, 3(1), 199–203. https://doi.org/https://doi.org/10.1002/hbe2.218

Maryanti, R., Hufad, A., Sunardi, S., & Nandiyanto, A. B. D. (2022). Teaching Viscosity to Students with Special Needs in Vocational High Schools from Daily Products: From Literature Review on Concept, Misconception, to Teaching and Learning Process. International Journal on Advanced Science, Engineering and Information Technology, 12(6), 2404–2414. https://doi.org/10.18517/ijaseit.12.6.17058

Metruk, R. (2022). Smartphone English Language Learning Challenges: A Systematic Literature Review. Sage Open, 12(1), 21582440221079628. https://doi.org/10.1177/21582440221079627

Minalla, A. A. (2024). Enhancing Young EFL Learners' Vocabulary Learning Through Contextualizing Animated Videos. Theory and Practice in Language Studies, 14(2), 578–586. https://doi.org/10.17507/tpls.1402.31

Posey, L. J., & Lyons, L. B. (2024). Harnessing Technology: Enhancing Learning in the Clinic and the Classroom. In Teaching and Learning in Physical Therapy: From Classroom to Clinic, Second Edition (pp. 393–420). https://doi.org/10.4324/9781003526704-16

Reynolds, B. L., Cui, Y., Kao, C.-W., & Thomas, N. (2022). Vocabulary Acquisition through Viewing Captioned and Subtitled Video: A Scoping Review and Meta-Analysis. Systems, 10(5). https://doi.org/10.3390/systems10050133

Santos, J. M., & Castro, R. D. R. (2021). Technological Pedagogical content knowledge (TPACK) in action: Application of learning in the classroom by pre-service teachers (PST). Social Sciences & Humanities Open, 3(1), 100110. https://doi.org/https://doi.org/10.1016/j.ssaho.2021.100110

Singh, B., & Kaunert, C. (2024). Hidden gems breakthrough dynamic landscape of adaptive learning technologies for higher education: Bridging the gap between theoretical and practical knowledge projecting student learning outcomes. In Adaptive Learning Technologies for Higher Education (pp. 222–247). https://doi.org/10.4018/979-8-3693-3641-0.ch010

Stewart, M. S. L. (2009). Language Development in Children with Special Needs. In International Encyclopedia of Education, Third Edition (pp. 745–751). https://doi.org/10.1016/B978-0-08-044894-7.01127-1

Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. Technology in Society, 65(March), 1–10. https://doi.org/10.1016/j.techsoc.2021.101565

Taghizadeh, M., & Basirat, M. (2024). Investigating pre-service EFL teachers' attitudes and challenges of online teaching. Computer Assisted Language Learning, 37(7), 1937–1974. https://doi.org/10.1080/09588221.2022.2136201

Tai, T.-Y., Chen, H. H.-J., & Todd, G. (2022). The impact of a virtual reality app on adolescent EFL learners' vocabulary learning. Computer Assisted Language Learning, 35(4), 892–917. https://doi.org/10.1080/09588221.2020.1752735

Tayco, C. C., & Motus, R. H. (2024). Lived Experiences of Receiving Teachers in Handling Behavioral Issues of Students With Special Needs. EPRA International Journal of Multidisciplinary Research (IJMR), 4(2), 452–459. https://doi.org/10.36713/epra16635

Weisi, H., Goodazi, A., & Dezhkam, M. A. (2024). Enhancing Iranian EFL Learners' Vocabulary Learning Through Technology-Assisted Mind-Mapping: The Mediating Role of E-Learning Enjoyment. CALL-EJ, 25(4), 169–191. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85209184213&partnerID=40&md5=04f17e2e5d38357d9e408a64310d6a1f

Xodabande, I., & Atai, M. R. (2022). Using mobile applications for self-directed learning of academic vocabulary among university students. Open Learning: The Journal of Open, Distance and e-Learning, 37(4), 330–347. https://doi.org/10.1080/02680513.2020.1847061

Yu, Z., Yu, L., Xu, Q., Xu, W., & Wu, P. (2022). Effects of mobile learning technologies and social media tools on student engagement and learning outcomes of English learning. Technology, Pedagogy and Education, 31(3), 381–398. https://doi.org/10.1080/1475939X.2022.2045215

Zakian, M., Xodabande, I., Valizadeh, M., & Yousefvand, M. (2022). Out-of-the-classroom learning of English vocabulary by EFL learners: investigating the effectiveness of mobile assisted learning with digital flashcards. Asian-Pacific Journal of Second and Foreign Language Education, 7(1), 16. https://doi.org/10.1186/s40862-022-00143-8

Zhang, C., Yan, X., & Wang, J. (2021). EFL Teachers' Online Assessment Practices During the COVID-19 Pandemic: Changes and Mediating Factors. The Asia-Pacific Education Researcher, 30(6), 499–507. https://doi.org/10.1007/s40299-021-00589-3

Zulkifli, H., Rashid, S. M. M., Mohamed, S., Toran, H., Raus, N. M., Pisol, M. I. M., & Suratman, M. N. (2022). Designing the content of religious education learning in creating sustainability among children with learning disabilities: A fuzzy delphi analysis. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.1036806