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Comparative Efficacy of ELSA and English Speaking Practice: A Quasi-Experimental Study on EFL Learning Outcomes

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Abstract: In an era where digital learning tools are reshaping the educational landscape, selecting the right language learning application becomes paramount, especially for institutions aiming to enhance their students' English proficiency. While numerous language applications exist, only a few are accessible without cost. This study zeroes in on two such free applications: ELSA and English Speaking Practice. The choice of these apps aimed to discern the instructional differences and their subsequent impact on learners. Conducted at SMK Negeri 17 Samarinda, the research involved two experimental classes: X Pharmacy 4 (33 students) and X Medical Laboratory Technology 1 (34 students). Using a Quasi-Experimental design, the study employed quantitative methods, including pre-test and post-test evaluations, to gauge the comparative effectiveness of the apps. The results were illuminating: the class utilizing ELSA witnessed a proficiency uptick of 15.21%, whereas the English Speaking Practice class observed a 13% increase. With a p-value of $0.000 < 0.05$, the data conclusively shows significant disparities in the efficacy of the two applications. This research underscores the importance of judiciously selecting digital tools in EFL contexts, ensuring optimal learning outcomes.

Keywords: *EFL Students; ELSA; Digital Learning Tools; English Speaking Practice.*

INTRODUCTION

The incorporation of technology in the field of education has brought about a substantial shift in teaching and learning methods within the context of English as a Foreign Language (EFL). This integration has introduced novel ways that greatly enhance the overall learning experiences. Mobile-assisted language learning (MALL) has played

a pivotal role in facilitating this paradigm shift, offering innovative pedagogical approaches within English as a Foreign Language (EFL) and English as a Second Language (ESL) settings (Zain and Bowles 2021). The advancement of technology has resulted in the broadening of educational settings, enabling the provision of courses, such as academic writing, via platforms such as Google Classroom (Rosyada

and Sundari 2021). The advancement of online computerized dynamic assessment has facilitated more accurate evaluations of L2 learners' progress, resulting in customized learning opportunities. This development has proven especially advantageous in special needs education, as it has been found to improve the listening abilities of students with autism (Mehri Kamrood et al. 2021; Sari, et al. 2021).

The field of English as a Foreign Language (EFL) has experienced a notable increase in the creation and utilization of educational applications that aim to provide personalized and flexible learning experiences, catering to the varied requirements and learning preferences of EFL learners (Kaharuddin 2022; Liu and Yan 2021; Gren 2020; Ongoro and Fanjiang 2023; Han and Niu 2021). The importance of E-learning has been emphasized, particularly in times of disruption such as the COVID-19 pandemic, underscoring its crucial role in sustaining and improving English proficiency among students (Kaharuddin 2022). The transition from conventional to more sophisticated, technology-driven methodologies is currently under rigorous examination. Scholars are investigating the efficacy of intelligent online platforms and the significance of blended learning and virtual scenario teaching in modern educational environments (Liu and Yan 2021; Gren 2020; Ongoro and Fanjiang 2023; Han and Niu 2021).

Several studies have delved into various aspects of EFL learning apps. A focus has been placed on the role of E-learning during disruptions like the COVID-19 pandemic, shedding light on how it affects English competence among students

(Kaharuddin 2022). Liu and Yan (2021) explored the design and implementation of intelligent online platforms for English learning, emphasizing the shift from traditional methods to more advanced, technology-driven approaches. Concurrently, other studies have emphasized the importance of blended learning in modern educational settings and the application of virtual scenario teaching (Gren 2020; Ongoro and Fanjiang 2023; Han and Niu 2021). With the advent of intelligent virtual agents, they've been integrated into EFL learning. Katsarou et al. (2023) conducted a systematic review on voice-based intelligent virtual agents and their impact on second language (L2) education, particularly EFL. This highlights the growing interest in leveraging artificial intelligence and voice recognition for enhancing language learning experiences. The fusion of technology and pedagogy in EFL instruction has shown promising results in several other studies, including the application of browser/server architecture in mobile learning platforms (Liu and Yan 2021; Gren 2020; Mao 2018). Despite the burgeoning research, there are noticeable gaps. Few studies provide a combative analysis between different English learning applications, assessing their relative strengths, weaknesses, and suitability for varied learner profiles. Also, the long-term efficacy of using these apps, in comparison to traditional methods, remains underexplored. Evaluative studies, such as those focusing on mobile applications for English word learning, highlight some of these gaps (Gren 2020; Ongoro and Fanjiang 2023; Kaharuddin 2022; Katsarou et al. 2023; Hao et al. 2019). Identifying these research gaps hints at the importance of a more holistic approach. Future studies could

focus on the comparative effectiveness of various EFL apps, their adaptability across diverse learner profiles, and their potential to replace or supplement traditional teaching methods. For example, the development and implementation of platforms like U-Msg emphasize the need for such comprehensive approaches. Such research would not only benefit EFL educators in making informed decisions but also assist app developers in refining and enhancing their offerings (Katsarou et al. 2023; Liu and Yan 2021; Gren 2020; Ongoro and Fanjiang 2023; Alieto et al. 2020). In conclusion, the ultimate aim of this line of inquiry is to optimize the EFL learning experience. A comparative study comparing English language learning apps would contribute significantly to the academic and practical domains of EFL education. By identifying the best practices and methodologies, educators can ensure that EFL students receive the most effective and engaging learning experiences, harnessing the full potential of technological advancements in the field, including the potential of big data language recognition techniques (Ongoro and Fanjiang 2023; Katsarou et al. 2023; Liu and Yan 2021; Kaharuddin 2022; Shi 2022). In this evolving academic landscape, the ELSA application emerges as a pivotal tool, endorsed by studies like those of Lesmana (2022), which demonstrated its potency in enhancing pronunciation, fluency, and vocabulary. Yet, varied methodologies and focal points across studies necessitate a more comparative approach. This research embarks on such a journey, juxtaposing ELSA against the English Speaking Practice application. As Gracella and Nur (2020) & Selwyn (2021) state that innovations like e-learning

systems have broadened learning horizons beyond the traditional confines of classrooms.

Applications like ELSA, embedded with features such as Speech Recognition and Personalized Curriculum, exemplify how artificial intelligence is being harnessed for linguistic mastery. On the other hand, the English Speaking Practice application adopts a more conversational approach, assessing users post-engagement. As digital tools cement their place in educational strategies, there's a collective push towards their innovative integration for enhanced student engagement and more efficacious content delivery (Robert and Pane 2020; Aswad 2017). This perspective contrasts with prior scholarly work that underscores the primacy of speaking in the acquisition of English language proficiency (Arbain and Nur 2017; Rindu and Ariyanti 2017; Ali et al. 2019).

In essence, this research endeavors to critically assess the impact of the ELSA and English Speaking Practice applications on English pronunciation proficiency. The overarching research question guiding this inquiry is: How do these applications compare in terms of enhancing English pronunciation?.

LITERATURE REVIEW

The shift towards E-learning, particularly during unexpected global events like the COVID-19 pandemic, has been a topic of interest among researchers. Kaharuddin (2022) delved into this transformation by examining the effects of E-learning on the English competence of EFL students during the pandemic. The study sheds light on how online

platforms have played a significant role in maintaining the continuity of education, emphasizing their potential for scalability and adaptability (Kaharuddin 2022; Zeeshan, Hämäläinen, and Neittaanmäki 2022).

The traditional teaching paradigms are witnessing a transformative shift with the integration of intelligent systems. Liu and Yan (2021) designed and implemented an intelligent online platform for English learning. Their research articulated the challenges in traditional pedagogies and proposed an innovative, technology-driven approach to overcome those challenges. Such endeavors underscore the need for modern teaching methodologies that resonate with the digital age (Liu and Yan 2021).

In the realm of EFL, there has been a noticeable interest in leveraging voice-based intelligent virtual agents. Katsarou et al (2023) conducted a comprehensive systematic review on these agents and their impact on second language education. Their findings accentuate the role of artificial intelligence and voice recognition in revolutionizing language learning experiences, offering personalized and immersive lessons to learners (Katsarou et al. 2023; Shu and Gu 2023).

Another innovative approach in the pedagogical domain is the flipped classroom. Gren (2020) explored this methodology's applicability in teaching empirical software engineering. While the focus wasn't exclusively on EFL, the study provides insights into the flipped classroom's efficacy, suggesting potential implications for EFL instruction where active learning and student engagement are paramount (Gren 2020; Ardi and Rianita 2022).

The integration of gaming elements in education has also garnered attention. Ongoro and Fanjiang (2023) embarked on a study to review digital game-based technology for English language learning. Their research underscores the potential of gamified learning platforms in enhancing motivation, retention, and overall learning outcomes in EFL contexts, demonstrating the fusion of entertainment and education (Ongoro and Fanjiang 2023).

The pedagogical techniques in EFL teaching are evolving, with virtual scenario teaching becoming a notable method. Han and Niu (2021) investigated its application in spoken English teaching, emphasizing its role in creating real-life conversational contexts for learners. Their findings advocate for more immersive, context-driven approaches in EFL instruction, aligning with the broader shift towards experiential learning (Han and Niu 2021).

RESEARCH METHOD

This study employs a quantitative research approach, as described by (Creswell 2015), which focuses on testing objective theories by examining the relationships between variables. These variables are measurable, typically with instruments, allowing for numerical data to be statistically analyzed. Central to the research design is the use of the Quasi-experimental method, specifically the Nonequivalent Control Group Design. According to Creswell (2015), this design involves an experimental group and a control group, both selected without random assignment. While both groups undergo pretests and posttests, only the experimental group receives treatment.

The research was conducted at SMKN 17 Samarinda, a school selected due to its vocational nature, making the understanding of English critical. Observations had revealed that students at this institution struggled with various aspects of the English language. The population under study comprised tenth-grade students of the 2022/2023 academic year, totaling 207 students across seven classes. For the purposes of this study, two classes were chosen via random sampling, consistent with Creswell (2015) assertion that every individual in a population should have an equal probability of selection. As the study's primary research instrument, tests were administered both before and after the intervention to gauge the effect of applied treatments on students' pronunciation abilities.

The study spanned one week and utilized two distinct classes as experimental groups. The research procedure was demarcated into early and end periods. Initially, students were introduced to the study's objectives, subjected to a pre-test, and then familiarized with the ELSA and English Speaking Practice applications meant to aid in pronunciation learning. Following a week of app utilization, feedback was collected, and a post-test was administered. For data analysis, the researcher evaluated the pretest and posttest results using a true and false assessment method, with each of the 50-word tests having a word value of 2 scores.

FINDINGS

This investigation pertained to the efficacy of two applications, ELSA and English Speaking Practice, in improving students' English pronunciation skills. To assess the impact, students from two classes

underwent both pre- and post-tests. Each class was allocated one of the two applications for usage over a week, after which comparisons were drawn between the pre- and post-test outcomes.

Table 1. Mean Score, Standard Deviation, and Standard Error from class X Pharmacy 4 (ELSA Speak Application):

X Pharmacy 4	N	Mean	Std. Deviation	Std. Error Mean
Pre-Test	33	66.79	16.378	2.851
Post-Test	33	82.00	10.025	1.745

In Class X Pharmacy 4, prior to any intervention, the pre-test revealed 14 students as failing, 10 passing, 7 rated as good, 1 as average, and 1 excelling. Upon completion of the ELSA application's week-long usage, an evident improvement was discerned. The post-test recorded 15 students passing, 10 excelling, 4 averaging, 3 considered good, and only 1 failing. Overall, the class's cumulative score leaped from 2204 to 2706 post-intervention. Visualization of these results displayed a stark drop in failure rates and a significant surge in excellent ratings in the post-test, clearly indicative of the ELSA application's effectiveness.

Table 2. Mean Score, Standard Deviation, and Standard Error from class X TLM 1 (English Speaking Practice Application)

X TLM 1	N	Mean	Std. Deviation	Std. Error Mean
Pre-Test	34	61.82	16.273	2.791
Post-Test	34	74.82	15.467	2.652

For Class X TLM 1, the pre-test classified 21 students as failing, 6 passing, 5 averaging, 1 rated good, and 1 as excellent. However, post-application intervention, despite the increase in total scores from 2102 to 2544, the post-test results remained mixed. Failures were reduced to 13, pass increased to 8, excellent rose to 7, average remained at 3, and good also stood at 3. This insinuates that while the English Speaking Practice application had a positive influence, it was not as robust as desired.

Statistical Analysis:

For Class X Pharmacy 4, the average pre-test score was 66.79 with a standard deviation of 16.378, whereas the post-test yielded an average score of 82.00 with a standard deviation of 10.025, marking an enhancement of 15.21%. In contrast, Class X TLM 1 pre-test results reflected a mean score of 61.82 with a standard deviation of 16.273. The post-test mean score improved to 74.82, indicating a 13% increase post-application usage.

The t-test was employed to discern any significant difference between the effects of the ELSA Speak Application and the English Speaking Practice Application. A significance level (2-tailed) of 0.000 was observed, which is lower than the established threshold of 0.005. This result substantiates the alternative hypothesis (H1), rejecting the null hypothesis (H0). Consequently, it can be concluded that a significant difference exists between the impacts of the two applications on students' English pronunciation skills.

DISCUSSION

This study endeavors to decipher the issue at hand: the empirical evidence for differences between ELSA Speak and English Speaking Practice in English pronunciation learning. Furthermore, the outcomes of this research will be elucidated.

Regarding the core problem, which questions the empirical distinction between ELSA application and English Speaking Practice, our resolution is anchored in the analysis of student scores collated via pre-test and post-test processes. The analysis yielded a 2-tailed sig value of 0.000, which is beneath the alpha threshold of 0.05. This signifies the rejection of H_0 and the acceptance of H_a .

Thus, a noteworthy difference exists between the ELSA application and English Speaking Practice in students' English pronunciation. This finding aligns with Muamar et al. (2022) research, which also underscored the efficacy of ELSA Speak Application in refining students' pronunciation skills.

ELSA's distinguishing features, particularly its integration of artificial intelligence assets like automatic speech recognition (ASR), amplify its effectiveness in pronunciation learning. These innovative features facilitate user-friendly pronunciation learning, offering immediate feedback on pronunciation inaccuracies (Ringeisen et al. 2019). In contrast, English Speaking Practice lacks these advanced features, offering merely a voice recording function for imitation. Such distinctions in app features undeniably influence their efficacy in teaching pronunciation. For instance, technologies have been shown to augment learning experiences,

offering visual cues and promoting active learning (Yilmazsoy et al. 2020; Kaharuddin 2022).

ELSA Speak's gamified interface, encompassing features like daily reminders, point systems, and animations, enhances student engagement and motivation (Rinaepi et al., 2022). This aligns with Riyani (2019) assertion that engaging English learning experiences can mitigate student boredom and heighten enthusiasm. After ELSA intervention, a marked improvement in student scores was evident, with only one student not meeting the minimum score threshold. On the contrary, students using English Speaking Practice exhibited varied results, with some still not achieving passing scores. This discrepancy can be attributed to the differential features of these apps, with the absence of AI guidance in English Speaking Practice potentially impeding student progress.

The distinct features of both apps further illustrate their disparities. ELSA Speak offers a tiered learning experience, from beginner to advanced levels, coupled with diverse content themes, video lessons, and certification opportunities. In contrast, English Speaking Practice offers limited thematic content and pronunciation quizzes (Liu and Yan 2021).

In summation, this research confirms a significant differential between ELSA Speak and English Speaking Practice concerning English pronunciation. Moreover, the ELSA application offers a more engaging and effective learning experience than its counterpart.

CONCLUSION

Drawing from the comprehensive analysis of the data collected, this study conclusively highlights a significant distinction between the efficacies of the ELSA and English Speaking Practice applications in enhancing the English pronunciation skills of students at SMKN 17 Samarinda. Notably, both applications demonstrate marked improvements in students' abilities, as evidenced by the pre-test and post-test scores. The underlying strength of these applications, particularly ELSA, appears to stem from their integration of advanced artificial intelligence features. These features, especially the error correction mechanisms, have proven instrumental in assisting students to refine their pronunciation. Such advancements suggest that the integration of technology, especially AI-driven applications, can substantially elevate the outcomes of English language instruction. As language educators continually seek innovative methodologies to bolster language acquisition, the findings of this research advocate for the broader incorporation of such digital tools in pedagogical practices. The data not only underscores the immediate benefits of using these applications but also hints at their potential as foundational tools for future English language curricula. The researcher, thus, emphasizes the potential of application-based learning, suggesting its viability as a transformative approach in English language education.

SUGGESTION

While this study offers valuable insights into the efficacy of ELSA and English Speaking Practice applications in enhancing pronunciation skills, it acknowledges potential areas for further refinement

and exploration. Recognizing the vast scope of language teaching methodologies, it is imperative for future researchers to delve into alternative strategies, particularly in the domain of reading comprehension. The current research can serve as a foundational reference, but it underscores the need for expansive investigations to holistically address the myriad aspects of language instruction. Therefore, the researcher encourages subsequent academic endeavors to build upon this study, aiming to further enrich the literature and practice surrounding this topic, thereby fostering more comprehensive and effective pedagogical approaches.

REFERENCES

- Ali, Jamal Kaid Mohammed, Muayad Abdulhalim Shamsan, Rajakumar Guduru, and Nirmala Yemmela. 2019. "Attitudes of Saudi EFL Learners towards Speaking Skills." *Arab World English Journal* 10 (2): 353–64.
- Alieto, E, B Abequibel, and C Ricohermoso. 2020. "An Investigation on Digital and Print Reading Attitudes: Samples from Filipino Preservice Teachers from a Non-Metropolitan-Based University." *Asian EFL Journal* 27 (43): 278–311. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096061906&partnerID=40&md5=7a81c318b90521e7c4414d4ffca66b8b>.
- Arbain, and Dedi Rahman Nur. 2017. "Techniques for Teaching Speaking Skill in Widya Gama Mahakam University." *Script Journal of Linguistics and English Teaching* 2 (1): 13–25.
- Ardi, Priyatno, and Elvira Rianita. 2022. "Leveraging Gamification into EFL Grammar Class to Boost Student Engagement." *Teaching English with Technology* 22 (2): 90–114.
- Aswad, Muhammad. 2017. "Is It Truly Improvisational Exercise Push Students' Speaking Ability." *EDUVELOP* 1 (1): 9–17. <https://doi.org/10.31605/eduvelop.v1i1.9>.
- Creswell, John W. 2015. "Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research, Enhanced Pearson EText with Loose-Leaf Version--Access Card Package." *Pearson Education, Inc.*
- Florentina Robert, Nia, and Widi Syahtia Pane. 2020. "Teacher's Strategies in Teaching English Speaking to Young Learners." *Borneo Educational Journal (Borju)* 2 (2): 60–67. <https://doi.org/10.24903/bej.v2i2.627>.
- Gracella, Jessy, and Dedi Rahman Nur. 2020. "Students' Perception of English Learning through YouTube Application." *Borneo Educational Journal (Borju)* 2 (1): 20–35. <https://doi.org/10.24903/bej.v2i1.623>.
- Gren, Lucas. 2020. "A Flipped Classroom Approach to Teaching Empirical Software Engineering." *IEEE Transactions on Education* 63 (3): 155–63. <https://doi.org/10.1109/TE.2019.2960264>.
- Han, Mengqing, and Shanshan Niu. 2021. "Application of Virtual Scenario Teaching in Spoken English Teaching." *International Journal of Emerging Technologies in Learning (IJET)* 16 (18): 129. <https://doi.org/10.3991/ijet.v16i18.25659>.
- Hao, Yungwei, Kathryn S. Lee, Szu-Ting Chen, and Sin Chie Sim. 2019. "An Evaluative Study of a Mobile Application for Middle School Students Struggling with English Vocabulary Learning." *Computers in Human Behavior* 95 (June): 208–16. <https://doi.org/10.1016/j.chb.2018.10.013>.
- Kaharuddin. 2022. "E-Learning During the COVID-19 Outbreak: The Effect of the Grammar Translation Method and the Direct Method on Students' English Competence." *Journal of Language Teaching and Research* 13 (2): 271–78. <https://doi.org/10.17507/jltr.1302.06>.
- Katsarou, Eirene, Fridolin Wild, Areti-Maria Sougari, and Paraskevi Chatzipanagiotou. 2023. "A Systematic Review of Voice-Based Intelligent Virtual Agents in EFL Education." *International Journal of Emerging Technologies in Learning (IJET)* 18 (10): 65–85. <https://doi.org/10.3991/ijet.v18i10.37723>.

- Lesmana, Belinda. 2022. "Using ELSA Speak Application to Improve Students' speaking Skill at UPT SPF SMPN 17 Makassar." UNIVERSITAS BOSOWA.
- Liu, Ying, and Hong Yan. 2021. "Design and Implementation of an Intelligent Online English Learning System Based on Mobile Internet Technology." *International Journal of Emerging Technologies in Learning (IJET)* 16 (24): 108–20. <https://doi.org/10.3991/ijet.v16i24.27835>.
- Mao, Lidan. 2018. "Application of Browser/Server Architecture in College English Online Learning System Design." *International Journal of Emerging Technologies in Learning (IJET)* 13 (03): 129. <https://doi.org/10.3991/ijet.v13i03.8395>.
- Mehri Kamrood, A, M Davoudi, S Ghaniabadi, and S M R Amirian. 2021. "Diagnosing L2 Learners' Development through Online Computerized Dynamic Assessment." *Computer Assisted Language Learning* 34 (7): 868–97. <https://doi.org/10.1080/09588221.2019.1645181>.
- Muamar, Muamar, Andi Tenri Ampa, and A M St Asmayanti. 2022. "Improving the Students Pronunciation Using English Language Speech Assistant (ELSA) Application (A Pre-Experimental Research at the Eleventh Grade Students of SMAN 9 Makassar)." *Journal of Language Testing and Assessment* 2 (2): 119–24.
- Ongoro, Catherine Akoth, and Yong-Yi Fanjiang. 2023. "Digital Game-Based Technology for English Language Learning in Preschools and Primary Schools: A Systematic Analysis." *IEEE Transactions on Learning Technologies*, 1–20. <https://doi.org/10.1109/TLT.2023.3268282>.
- Rinaepi, Rinaepi, Henni Rosa Triwardani, and Raysal Nur Azi. 2022. "The Effectiveness of Elsa Speak Application to Improve Pronunciation Ability." *Jurnal Fakultas Keguruan Dan Ilmu Pendidikan* 3 (1): 28–33.
- Rindu, Ignatius, and Ariyanti Ariyanti. 2017. "Teacher's Role in Managing the Class during Teaching and Learning Process." *Script Journal: Journal of Linguistic and English Teaching* 2 (1): 83–100.
- Ringeisen, Tobias, Stephanie Lichtenfeld, Sandra Becker, and Nina Minkley. 2019. "Stress Experience and Performance during an Oral Exam: The Role of Self-Efficacy, Threat Appraisals, Anxiety, and Cortisol." *Anxiety, Stress, & Coping* 32 (1): 50–66.
- Riyani, Tono Suwartono and Cici. 2019. "Authentic Assessment in ELT: Hopes, Challenges, and Practices." *Jurnal Ilmiah Kependidikan* 9: 112–20.
- Rosyada, A, and H Sundari. 2021. "Learning from Home Environment: Academic Writing Course for EFL Undergraduates through Google Classroom Application." *Studies in English Language and Education* 8 (2): 710–25. <https://doi.org/10.24815/siele.v8i2.18374>.
- Sari, D F, E R Gea, and D Fajrina. 2021. "The Listening Skill of Autistic Students in Learning English through Total Physical Response." *Studies in English Language and Education* 8 (1): 34–46. <https://doi.org/10.24815/siele.v8i1.18131>.
- Selwyn, Neil. 2021. "Ed-Tech Within Limits: Anticipating Educational Technology in Times of Environmental Crisis." *E-Learning and Digital Media* 18 (5): 496–510. <https://doi.org/10.1177/20427530211022951>.
- Shi, Long. 2022. "Application of Big Data Language Recognition Technology and GPU Parallel Computing in English Teaching Visualization System." *Int. J. Speech Technol.* 25 (3): 667–677. <https://doi.org/10.1007/s10772-021-09904-1>.
- Shu, Xiaoyang, and Xiaoqing Gu. 2023. "An Empirical Study of A Smart Education Model Enabled by the Edu-Metaverse to Enhance Better Learning Outcomes for Students." *Systems* 11 (2): 75. <https://doi.org/10.3390/systems11020075>.
- Yilmazsoy, Burak, Mehmet Kahraman, and Utku Köse. 2020. "Negative Aspects of Using Social Networks in Education: A Brief Review on WhatsApp Example." *Journal of Educational Technology and Online Learning* 3 (1): 69–90. <https://doi.org/10.31681/jetol.662746>.
- Zain, D S M, and F A Bowles. 2021. "Mobile-Assisted Language Learning (Mall) for Higher Education Instructional Practices in EFL/ESL Contexts: A Recent Review of Literature." *CALL-EJ* 22 (1): 282–307.

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101273759&partnerID=40&md5=02090befd25b2aa6bd56b69377f308b0>.

Zeeshan, Khaula, Timo Hämäläinen, and Pekka Neittaanmäki. 2022. "Internet of Things for Sustainable Smart Education: An Overview." *Sustainability* 14 (7): 4293. <https://doi.org/10.3390/su14074293>.

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