
The Transformative Impact Of Educational Tools On LSRW Skills In ESL Classrooms

L.Vidhya^{1,2} and S. Ramya¹

1 Department of English and Foreign Languages, SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu- 603 203, India

2 Sri Ramachandra Faculty of Allied Health Sciences, Sri Ramachandra Institute of Higher Education and Research (DU), Porur, Chennai-116.

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ABSTRACT

Education is an intervention that can change individuals' lives and also communities by building skills such as listening, speaking, reading, and writing LSRW. It is important to point out that educational tools assist in developing the above-mentioned skills and change communication and dealing with the environment. Evaluating the role and significance of educational tools in enhancing LSRW skills, it can be stated that one of the most significant changes is boosting the literacy level. Again, the availability of books, use of the internet and other forms of media and facilities via the internet as well as electronic learning tools can enhance the levels of literacy in reading and writing. Anything that provides language practice such as listening or speaking, be it via audio such as Broadcast, podcasts, or using apps for learning languages, enhances the client's exposure to different cultures and ways of thinking. Teaching aids can enhance learning as they help the learners to understand what is taught given that some of them have disabilities or learning difficulties. They can easily organize learning environments and tailor them to the learning processes and orientation of students.

Technology can be incorporated into a learning management system, assessment tools, and multimedia resources that apply to the teaching-learning process. When educational tools are used frequently, one can transfer most of the skills being taught in a class to other areas of life, via informal learning processes. With the modern improvement of technology and innovation in education, the possibility for those educational tools to change lives and communities for the better through developing LSRW skills is boundless. Ed Tech's role and how it multiplies the ESL classrooms in producing enhanced LSRW skills The increase in the learning experiences and the motivation of the students is seen in combination with the improved language skills. About the future of educational tools and their influence on mastering the language, it is possible to state that due to the constant developments in the field of IT, there are more potential possibilities for creating new advanced tools.

Keywords: Technology, tools, education, ESL classroom, LSRW skills.

INTRODUCTION

The incorporation of new educational technologies has affected positively learning a second language, effectively, especially for ESL students. Facilities like language learning apps, smart whiteboards, and access to courses through the internet help ESL students change the involvement of the four skills: listening, speaking, reading, and writing. Additionally, these tools promote participation, making it easier for students to learn by doing, even if they have different learning styles. They provide instant commendation and correction for learner errors, guidance on the learning process, and real-life usage of the language, enhancing the learner's understanding of the language being used. Research works indicate that the introduction of educational tools enhances students' motivation in language learning. These tools complement the utilization of several components of gamification as well as interactivity used in the process of learning the language. This scenario makes the students to be more active when it comes to the use of language thus increasing fluency and confidence in using English.

Background of ESL Education in India

ESL education in India is marked by a multi-faceted system influenced by social, political, and economic factors. The country's multilingualism, English introduced by the British East India Company in the 17th century makes it essential in educational, administrative, and commercial sectors. Due to the global economic powerhouse status of the country and the belief that English language speaking ability equals economic prosperity, there is a rapidly expanding market for ESL education both amongst the youth and the adult population, as they seek to get a good job and access to opportunities in the global economy.

The system of education in the country that mostly implements the English medium perpetuates the phenomenon of the 'educationally deprived' on the one hand and the 'privileged English educated' on the other. There are measures underway for the promotion of the English language in students; most recently ESL was incorporated in the primary schools. Nevertheless, some of its opponents pointed out that the concept of English could at least be to the detriment of native languages and cultures. However, ESL education in India is found to be improving with many private language schools and institutions offering the programmes to students of different ages and origins. Also, there is a developing number of online resources and platforms that help people enhance their English. A major challenge to ESL education in India is inadequate human resources and capacity to deliver quality instruction as well as the capacity to promote learning among students.

Another problem is the issue of social inequality in the country; there are areas where the English language is a potent symbol of social and economic prosperity; this again has led to the peculiar distribution of education in the society with the disadvantaged joining the more advantaged in the society. The critics oppose the program claiming that the concentration is shifted toward the English language neglecting other equally crucial competencies and information. However, there are also some areas for development and innovations within the frame of ESL education in India. The emanation of online platforms and various applications can go a long way in changing the face of teaching and learning English in the country.

Importance of LSRW Skills in ESL Learning

Language is an essential component of human associations; hence English as a Second Language (ESL) learners undergo challenges in acquiring the four language skills; Listening, Speaking, Reading, and Writing (LSRW). Acquiring the knowledge of these skills is vital when using English to communicate within and outside the classroom.

Interpersonal skills and listening skills are vital in spoken language because they enable students to grasp different accents, intonation and speech rhythms. Listening comprehension benefits students in following instructions, grasping what is being said in classrooms, and interacting with native speakers. SPEAKING skills are imperative to convey what one wants to say, what one wants to share, or maybe what one perceives. Reading skills in ESL enable the students to acquire a tremendous amount of information, knowledge, and literature in English, enhance their vocabulary and comprehension, and at the same time foster the development of their critical thinking skills. Writing skills can be considered to be more intricate and entail the ability to organize thoughts and structure them plus the capability of the ESL learners to express themselves in writing.

The effective use of skills like role-play, debate, and projects will help the students in the development of language and communication skills comparatively in actual conditions. Every student must master the skills in LSRW as they form the basic platform for academic achievement, job employment, and globalization. Interacting with texts of different genres and from various authors enables the students to learn about different cultures, accept people with different backgrounds, and promote cross-cultural interactions. Warren (2013) observes that the improvement of LSRW skills is necessary as it will facilitate the ESL learners to optimize their ability in the English-speaking context to communicate, improve their academic performance, gain employment as well as become culturally competent.

Educational tools for ESL learning

Educational tools must align with the existing curriculum and pedagogical goals, which can be difficult to achieve (Cuban, Kirkpatrick, & Peck, 2001). Materials for teaching ESL are vital to enable learners with better English language mastery, especially those learners with English language as a second language. Such tools consist of social networks, which present more fitted exercises, quizzes, or games to let the students reinforce and alter their failing knowledge in VAG and pronunciation unobtrusively and independently of class speed. The language learning applications which consist of flashcards, audio, and the trainers with video lessons help the students use the English any time in a day they prefer; therefore, integration of language learning in the everyday life of a student can be more easily accomplished.

Applications are developed to teach individually, give feedback, monitor progress, set goals, and focus on the achievement of these goals through exams and exercises. Group projects and the use of language partners that would enable students to engage in real-life conversation also enhance listening and speaking skills in addition to the exposure given to the different regional accents and dialects. There is an abundance of English grammar, lexis, and phonology

information on blogging or websites of language learning. There is often resistance from educators and administrators who are accustomed to traditional methods of teaching (Ertmer, 1999).

The use of reading articles, watching videos, and even participating in online forums helps strengthen language skills and get to know the current trends in English language learning. To be more specific, we have conventional teaching aids like textbooks and workbooks suitable for matching the conventional method of teaching English as a subject to students. These materials can enhance the functions of reading and writing; strengthen the fundamental knowledge for the further educational process; develop appropriate language for communication and the pride in it. These educational tools are very vital in teaching ESL students to enhance their command of the English language. There is no doubt that utilization of teaching aids in education particularly for English as a second language is paramount in enhancing the command of English by those who are in the process of learning the language. ESL students utilize Language learning apps, social media, conversation exchange services, physical and ICT-based textbooks, and other reference materials in their learning process. Through the use of the above-mentioned tools, ESL students will be able to develop his/her language skills and fulfill language learning objectives.

Traditional Educational Tools vs. Digital Educational Tools

In the battle between traditional methods of learning and teaching-learning with ICT systems, satisfaction among the learners plays a key role in boosting the comprehension level to the extent it is considered worth enriching. Data obtained from a literature review supports the fact that the use of e-learning tools in conjunction with face-to-face teaching can have a strong bearing on the choice of the students as compared to the conventional teaching methods. A study by Tamim et al. (2011) conducted a meta-analysis of the effectiveness of digital tools in education. It found that digital tools can enhance student learning outcomes when appropriately integrated. This underlines the significance of creativity in the learning process to achieve maximum results and to meet new challenges and conditions in the sphere of education. Research by Kay and LeSage (2009) explored the impact of interactive learning environments on student engagement and performance. Their findings suggest that such environments, including interactive whiteboards and clickers, can significantly increase student engagement and achievement. Ensuring sustainable funding for the maintenance and upgrading of these tools over time is another significant challenge (Kozma, 2005).

Helen Mercedes states “The roots of education are bitter, but the fruit is sweet” highlighting the idea of change and the positive outcomes of the educational process. It is the fundamental structure of a nation’s growth, and learning is a component of this process. Face-to-face classroom education where the teacher and students meet physically and engage in learning processes can be described in these aspects and has been the most common form of learning for many years. In Bishop and Verleger's (2013) study, students review lecture materials at home and participate in interactive activities in class. They found that this model can improve student performance and satisfaction, particularly in STEM disciplines. Nevertheless, with the

evolution of blended teaching-learning systems encompassing face-to-face along with online class delivery mechanisms, the focus has turned to the satisfaction level of the students for these two types of lectures. A combination of the methods of teaching such as blended mode has been termed to have enhancement effects on student satisfaction beyond other custom methods.

Incorporating Multimedia tools in education is advantageous in several ways; they include high clarity, high engagement, and fairly fast learning rates. Against this background, the provision of effective education delivery focuses on teaching and learning tools and the application of effective strategies to enhance student achievement. Deterding et al. (2011) examined the use of gamification in educational contexts. Their study highlights how game-based elements can motivate students and enhance learning experiences, although the impact varies depending on implementation. In the areas of technical education, which essentially involves the use of visuals more often, multimedia-based education increases the quality of education and has the added benefit of being engaging and it has been found to offer advantages such as improved clarity, heightened engagement, and faster learning rates. A study by Crompton and Burke (2018) analysed the impact of mobile learning on student achievement. Their research shows that mobile devices can support personalized learning and increase accessibility to educational resources, leading to improved outcomes. These studies demonstrate the potential benefits of various educational tools and technologies when effectively integrated into teaching and learning practices.

Several tools are used in both traditional and digital educational environments, each intended to improve learning experiences in unique ways.

Traditional Tools:

Textbooks, notebooks, pens, chalkboards, erasers, rulers, protractors, maps, flashcards, overhead projectors, workbooks, laboratory equipment, library books, educational posters, and worksheets.

Digital Tools:

Learning Management Systems (LMS), educational apps like Khan Academy, Duolingo, Quizlet, e-books, e-readers, online collaboration tools like Google Classroom, Microsoft Teams, Slack, interactive whiteboards, virtual reality and augmented reality tools, educational websites, videoconferencing tools, online assessment tools, digital notetaking apps, audiobooks and podcasts, and cloud storage platforms.

These tools help students to learn better and complete assignments, and engage in various activities, while also providing a comprehensive learning experience.

Types of Educational Tools for LSRW Skills

The four fundamental language abilities (reading, speaking, listening, and writing) are required for language learning and educational success. Understanding authentic materials and

communicating effectively requires good speaking skills. Writing, often regarded as the final skill, is essential for effective communication. In educational settings, integrating these skills is critical for overall language development. Reading promotes vocabulary development, comprehension, and critical thinking, whereas speaking improves fluency, pronunciation, and interpersonal communication. Writing proficiency enables coherent expression and logical organization of thoughts. Balancing these skills is crucial for enhancing students' language acquisition and communication competencies. Students who are proficient in writing can convey ideas eloquently, organize their thoughts rationally, and successfully explain difficult material. By highlighting the importance of these skills, educators can create holistic language learning techniques that accommodate students' different learning requirements while also promoting overall language competency. Students may also struggle to adapt to new tools and methods, requiring additional support and guidance (Bingimlas, 2009). Maintaining a balance among these four language skills is critical for improving students' language acquisition and communication abilities.

Language Skills as Supplemented with Tools

Listening:

- Podcasts and audiobooks: Successful podcasts, marketplace detectable, podcast apps.
- Language Learning Apps: Some of them are companies such as Duolingo, Rosetta Stone, and Babbel and among them, Babbel is considered as the app that is effective for learning a new language.
- Videos and Movies: Internet (YouTube, Netflix, Khan Academy) But unfortunately, with its help, multimedia has made information easily accessible to everyone which in terms has created confusion for the students on what they would consider as 'This is important' and what they would not.
- Listening Exercises: Tool which includes the websites and the teaching aids & worksheets that are available on the web.

Speaking:

- Language Exchange Programs: Simultaneously it has websites like HelloTalk, Conversation Clubs.
- Speech Recognition Software: However, beside this Google Translate free addition, ELSA Speak application.
- Virtual Classrooms: For instance, face to face conferences through the use of Applications such as Zoom, Google Meet, and others.
- Pronunciation Apps: There are Forvo and Pronunciation Coach among them.

Reading:

- E-books and Digital Libraries: After body, Kindle, Project Gutenberg, Open Library.
- Educational Websites and Blogs: The additional source is the BBC Learning English, while Newsela is stated to be used.
- Reading Comprehension Apps: Read by going through the two websites: ReadTheory and Epic!.

- Interactive Storybooks: The three sources used were Raz-Kids and Storybird.

Writing:

- Writing with or without a computer, typing, drawing, painting, charting, mapping or graphing, printing, preparing a report or any other composition and speaking. com and other related mobile applications like Penzu.
- Grammar and Writing Tools: There are others including – Grammarly, Hemingway Editor, and ProWritingAid among others.
- Collaborative Writing Platforms: Some examples of note-taking applications are Google Docs, Microsoft OneNote, and Evernote among others.
- Online Courses and Tutorials: These are the most popular learning platforms namely Coursera, Udemy, and Khan Academy.

Integrated Tools for LSRW Skills: LSRW Skills: The Efficacies of Integrated Tools.

- Language Learning Platforms: Language learning applications are duolingo, babbel, and memrise.
- Online Classes and MOOCs: Some of the best-known which is international are Coursera, edX, and Future Learn.
- Educational Games and Apps: The two programs that are discussed in this paper are Lingokids and Mango Languages.
- Tutoring Services: There are two of them that are partnered with iTalki and Verbling.

Rich source through the library for enhancing the LSRW skills

The library sciences setting emphasises how important these abilities are for improving academic performance and utilisation of library resources efficiently. Students need each of the LSRW abilities to use the library's resources to their fullest potential, do research, and interact with the larger academic community.

1. Students' Listening Skills

Students need to listen well to access and comprehend libraries' abundance of information.

Workshops and Library Orientations: During library orientations, when crucial information about resources, databases, and research tools is presented, students must have excellent listening skills (ALA). Students who actively listen are better equipped to understand how to use the library system.

Sessions for Research Assistance: When students ask librarians for assistance, attentive listening enables them to comprehend directions using search engines, citation tools, or other research-related resources (Harmer). This skill ensures they follow guidance on locating academic articles or utilizing electronic resources efficiently.

Speaking Proficiency for Learners

Speaking is crucial for students to actively use library resources, ask for assistance when necessary, and work with classmates on academic assignments.

Interaction with Librarians: When doing reference interviews or research consultations, students must interact with librarians effectively. Librarians are better able to comprehend their research demands when there is clear communication, which guarantees that they are given the appropriate direction while locating resources (ALA).

Group Study and Conversations: Students can participate in group studies or conversations in the collaborative areas that libraries offer. In these situations, communicating is essential for sharing knowledge, exchanging ideas, and elucidating ideas with peers (Harmer).

Presentations and Scholarly Conversations: Libraries frequently provide spaces for students to share their findings or take part in scholarly conversations. Strong communication abilities allow them to confidently present their results and interact with confidence (ALA).

Students' Reading Proficiency

Since students use library resources to read novels, research papers, and scholarly articles, reading is arguably the skill most closely linked to library usage.

Research and Scholarly Reading: Academic publications, reference books, and electronic resources abound in libraries. Students with strong reading abilities can understand challenging academic literature, critically evaluate information and use it in their research projects and courses (Kumar)

Digital literacy: Digital archives, online databases, and e-books are all accessible through libraries. Navigating these resources calls for not only rudimentary reading comprehension but also the capacity to understand digital texts and use digital tools to get specific information (ALA).

Reading for Pleasure: Students can improve their language and vocabulary skills by using library materials (Harmer). Reading fiction and nonfiction literature fosters language development, increases imagination and strengthens cognitive abilities.

4. Student Writing

Proficiency

For students, writing is essential, particularly when completing projects, essays, and research papers. Libraries offer a wide range of resources and tools to help students become proficient writers.

Academic Writing: Libraries help students create well-structured research papers by providing research support, writing instructions, and citation tools (like Mendeley or Zotero).

Additionally, they give students access to style guides (such as APA and MLA), which aid in their adherence to academic writing requirements.

Taking Notes and Summarising: Students must take notes and summarise the material they learn while conducting research in the library. Proficiency in writing enables individuals to accurately synthesise and paraphrase information, which enhances their capacity to finish tasks and projects (Harmer).

Writing Research Proposals: Libraries frequently offer workshops on research proposal writing to students engaged in significant research initiatives. Students who want to get their academic research projects approved must learn how to write properly and convincingly.

LSRW abilities Integration into Student Learning Libraries is essential in helping students incorporate

LSRW abilities into their academic careers by providing:

seminars and Tutorials: To help students improve all four LSRW skills, many libraries provide seminars aimed at improving academic abilities. These courses cover topics such as writing, research, and presentation approaches.

Access to Multimedia Resources: Libraries offer a wealth of textual resources that enhance reading and writing abilities, as well as audiobooks, podcasts, and videos that enhance speaking and listening abilities (Harmer).

Collaborative Learning Spaces: In the library, students can work together in groups on projects and discussions by successfully utilising their speaking and listening abilities. Reading and writing activities are also supported by the availability of both physical and digital resources (ALA).

It is evident how LSRW skills relate to library science students. Speaking and listening enable students to communicate effectively, whether they are working with peers or asking for assistance. While writing is crucial for effectively conveying ideas in academic work, reading aids students in accessing and understanding the abundance of knowledge that libraries contain. Students can get the most out of their education and utilise the wealth of resources that libraries provide by honing these abilities. In turn, libraries offer the best setting and materials to assist students in honing these crucial language abilities, which enhances their overall academic performance.

Challenges in implementing educational tools in ESL classroom

To effectively use educational tools, teachers must receive comprehensive training. These tools can be difficult to integrate into the teaching practices of many educators (Inan & Lowther, 2010). Basic learning resources are critical in today's learning environments, but the incorporation of these items is not without issues. Another issue is the challenge of getting educators to go for new technologies which they may initially not consider the best hub. Such resistance can prevent the successful implementation of educational tools and restrict the

effects of the tools on the students' learning. Ongoing technical support and maintenance are crucial, and many institutions struggle with the cost and logistics of providing this support (Chigona & Chigona, 2010). To overcome this, the educators themselves require support and training. The fifth difficulty is the absence of organizational support and assistance in the form of resources. Schools and universities also lack the proper facilities and funds that could be required to incorporate technology into the learning process. If educators do not have the necessary tools and materials, they might not have the potential to deliver appropriate education tools, which may in turn prove to be detrimental to the students. They must commit the appropriate resources and infrastructures that would facilitate the execution of the educational tools.

To support advanced educational tools, schools need reliable internet access and adequate hardware (Afshari et al., 2009). Despite the huge number of available technologies for enhancing the teaching and learning processes, the fast rate of technology integration creates a challenge for trainers in choosing the right tools to support education. They have to be up-to-date with the existing trends in educational technology and analyse the effectiveness of each tool in terms of advantages and possible disadvantages faced in a class. This involves a lot of time for the educators to spend on the same to be able to put some effort in intending to catch up with the technology. Other issues in adopting educational tools relate generally to accessibility and equity. Organization of the contents of this section: IDing the Gap Sources of inequity for students Learner variability and digital inequality. There is often a lack of continuous professional development opportunities to keep teachers updated with the latest technological advancements and pedagogical strategies (Lawless & Pellegrino, 2007). There is often a lack of continuous professional development opportunities to keep teachers updated with the latest technological advancements and pedagogical strategies (Lawless & Pellegrino, 2007). Accessibility problems Examples of difficulties Conclusion School personnel need to be aware of such disparities; and make adjustments to guarantee that the children they teach receive appropriate materials for their use.

Distance learning mainly when adopting educational tools and applications can be a challenge because of the difficulty of integrating them into existing curricula and practices. Technology is a tool that could be seamlessly implemented into the learning environment, however, the implementation of new technologies into the curriculum may force educators to redesign their strategies for delivering knowledge. This challenge can be solved with the help of collaboration with instructional designers and specialists in the field of technology. Another concern that teachers have to face when using educational tools is data protection and privacy. A large number of tools require the storage of student data to also be collected with the effects of privacy and data security on the minds of the students. Developing proper policies for schools and institutions is of paramount importance to protect students' information and also to follow the data protection laws that are in place. Education and training of educators as well as staff development are also among the major difficulties encountered. The school administrators and institutions must offer professional development to the educators to be in a position to incorporate ICT in their teaching practice. Technical support personnel should be specifically assigned to deal with issues and attend to people's needs.

Opportunities for Future Research and Development in using Educational Tools

ESL classrooms are rapidly evolving in the field of patterned listening, speaking, reading, and writing (LSRW) skills. Focus on key areas and potential directions for future research provides valuable insights and develops the usage of innovative educational tools for effective learning. Research on the following aspects can help for better learning.

- Utilization of AI, Machine Learning, Virtual and Augmented Reality, Mobile applications, and Computer-supported Collaborative Learning.
- Integration with social media platforms like Google Classroom, Microsoft Teams, and Zoom.
- Incorporation of game-based learning, intelligent learning environments, and multicultural media.
- Future research methods, including automated assessment tools and peer and self-assessment tools.
- Service education and staff development to promote Technology Integration for ESL Teachers.
- Use of analytics to monitor learning outcomes and student participation.
- Cohort research to assess the long-term impact of educational tools on LSRW skills.
- Emphasis on accessibility and language diversity in educational tools.
- Options like text-to-speech, closed captions, and customization options for language support.

Conclusion

Using of adaptive learning technologies enables students to be given feedback and recommendations regarding their weak or strong areas in learning to enhance the mastery of linguistic skills. The use of e-books, social reading apps, and annotated electronic text tools have availed reading materials to the students to easily highlight crucial points, jot down notes, and obtain relevant information. For speaking skills, educational tools have helped students gain resources by which they can practice their skills in aspects of communication while using technology. Video conferencing software, speech-to-text software and language translating applications help the students practice conversing with the natives, correct their pronunciation, and enhance their flow when speaking. This has been a significant revelation that educational writing tools have influenced the writing skills of most students and made them enjoy writing because they have been provided with numerous resources that help them better their writing skills. Automatic tools such as grammar checkers, plagiarism detectors, and writing improvement tools offer students immediate feedback on printed work by pointing out errors, the right choice of words, correct structure, and style of writing. In particular, students' cooperation has been supported by synchronous and asynchronous communication means like online forums, group chat, and co-authoring applications. The connection between LSRW skills and students in library sciences is clear. Listening and speaking allow students to engage in effective communication, whether they are seeking help or collaborating with peers. Reading helps students access and comprehend the wealth of knowledge libraries hold, while writing is essential for expressing ideas clearly in academic work. By developing these skills, students

can maximize their learning experience and make the most of the vast resources libraries offer. Libraries, in turn, provide the ideal environment and resources to help students refine these essential language skills, contributing to their overall academic success.

Some of the benefits of using computers to teach include; the use of a learning management system, the use of online quizzes, and the use of automated grading systems which enable teachers to track the performance of students, look for areas of improvement, and assist students in their development credibly. the changes in LSRW skills brought by educational tools can be testified and therefore, it is incumbent upon educators and students to accept such tool's potential and make the necessary shifts to support the teaching and learning of language in the 21st century.

References

Afshari, M., Bakar, K. A., Luan, W. S., Samah, B. A., & Fooi, F. S. (2009). Factors affecting teachers' use of information and communication technology. *International Journal of Instruction*, 2(1), 77-104.

ALA (American Library Association) (2024). "The Role of Librarians in Information Literacy." *American Library Association*, www.ala.org. Accessed 25 Oct. 2024.

Ali Imran, et al (2023) "A Comparison of Student Satisfaction between Traditional Mode of Education and Blended Teaching-Learning System." *Contemporary Issues in Social Sciences and Management Practices*, <https://doi.org/10.61503/cissmp.v2i2.35>.

Anderson, Lorin W., and David R. Krathwohl, eds. *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. Longman, 2001.

Amirmohammad Merajikhah, et al. (2020) "The Comparison of the Effects of Multimedia Tools and Traditional Methods on Neurosurgery Learning." *Educational Research in Medical Sciences*, <https://doi.org/10.5812/erms.100355>.

Bingimlas, K. A. (2009). Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature. *Eurasia Journal of Mathematics, Science and Technology Education*, 5(3), 235-245.

Chigona, A., & Chigona, W. (2010). An investigation of factors affecting the use of ICT for teaching in the Western Cape schools. *Proceedings of the 18th European Conference on Information Systems (ECIS 2010)*.

Crompton, H., & Burke, D. (2018). "The use of mobile learning in higher education: A systematic review." *Computers & Education*, 123, 53-64.

Cuban, L., Kirkpatrick, H., & Peck, C. (2001). High access and low use of technologies in high school classrooms: Explaining an apparent paradox. *American Educational Research Journal*, 38(4), 813-834.

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). "From game design elements to gamefulness: Defining 'gamification'." In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments* (pp. 9-15).

Ertmer, P. A. (1999). Addressing first- and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development*, 47(4), 47-61.
Harmer, Jeremy (2007). *How to Teach English*. Pearson.

Inan, F. A., & Lowther, D. L. (2010). Factors affecting technology integration in K-12 classrooms: A path model. *Educational Technology Research and Development*, 58(2), 137-154.

J. L., & Verleger, M. A. (2013). "The flipped classroom: A survey of the research." In *ASEE National Conference Proceedings*, Atlanta, GA (Vol. 30, No. 9, pp. 1-18).

J. P. Rubim, et al. (2019). "The Use of Remote Experimentation as a Teaching Tool: A Literature Review." *International Journal of Information and Education Technology*, <https://doi.org/10.18178/ijiet.2019.9.11.1312>

Kay, R. H., & LeSage, A. (2009). "Examining the benefits and challenges of using audience response systems: A review of the literature." *Computers & Education*, 53(3), 819-827

Kozma, R. B. (2005). National policies that connect ICT-based education reform to economic and social development. *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments*, 1(2), 117-156.

Kumar, Swapna. (2015) "The Importance of Listening Skills in the Modern World." *Journal of Educational Development*, vol. 29, no. 2, pp. 45-52.

Lai, K. W. (2008). ICT supporting the learning process: The premise, reality, and promise. *International Handbook of Information Technology in Primary and Secondary Education*, 215-230.

Lawless, K. A., & Pellegrino, J. W. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. *Review of Educational Research*, 77(4), 575-614.

Noraniza Ibrahim, et al. (2019) "Multi-Criteria Evaluation and Benchmarking for Young Learners' English Language Mobile Applications in Terms of LSRW Skills." IEEE Access, vol. 7, pp. 146620–51, <https://doi.org/10.1109/ACCESS.2019.2941640>.

R. Tarasenko, et al. (2021). Comparison of Ontology with Non-Ontology Tools for Educational Research, pp. 82–104, <https://doi.org/10.31812/123456789/4432>

Tamim, R. M., Bernard, R. M., Borokhovski, E., Abrami, P. C., & Schmid, R. F. (2011). "What forty years of research says about the impact of technology on learning: A second-order meta-analysis and validation study." *Review of Educational Research*, 81(1), 4-28.

Yogeshri J. Jibhkate, et al. (2023) "Extraction: An Important Tool in the Pharmaceutical Field." International Journal of Science and Research Archive, <https://doi.org/10.30574/ijrsra.2023.10.1.0768>.