International Journal of Educational Evaluation and Policy Analysis
Volume. 1 No. 4 October 2024
Online ISSN : 3048-0841,Print ISSN : 3048-0833, Page. 27-40
DOI: https://doi.org/10.62951/ijeepa.v1i4.49
Available online at: https://international.aripi.or.id/index.php/IJEEPA

Machine Learning, Software, Applications, and Websites For Language Instruction

M. Bambang Purwanto [1*], Umar Umar [2], Ariya Agustin [3], Marsinah Marsinah [4], R.A Rodia Fitri Indriani [5]
[1,3,4,5] Prasetiya Mandiri Polytechnics, Indonesia
[2] STIT Buntet Pesantren, Indonesia
*Email : mbambangpurwanto@gmail.com**

Abstract, *This study aims to examine the latest developments in the application of machine learning, software, applications, and websites in language teaching. With the advancement of technology, language learning is increasingly facilitated by the use of digital tools that utilize artificial intelligence (AI) and machine learning to improve the learning experience in an adaptive and interactive manner. The study reviewed a variety of platforms that use this technology, including key features that support personalization, automated feedback, and student performance assessments. In addition, this study discusses the effectiveness of the technology in supporting independent and formal learning in the classroom, including implementation challenges in various educational settings. It was found that although this technology provides a great opportunity in accelerating language learning, there are some limitations, such as limited access in regions with low digital infrastructure, as well as lack of integration with relevant cultural and social contexts in language learning. This study concludes that machine learning-based technology in language teaching has great potential, but further research is needed to optimize its application in various educational contexts.*

Keywords: *Machine Learning, Software, Applications, Websites, Language Learning*

1. INTRODUCTION

It is crucial that there be a variety of English teaching techniques. While instructing kids in a foreign language, it's important to consider fresh approaches to encouraging their speaking. Nevertheless, many classical institutions continue to make an effort to use antiquated practices and outdated literature. There will always be issues, and language learners are not satisfied with both the calibres of their results and the instruction they receive. This essay aims to examine a few engaging teaching strategies that can affect students' language development (Umar et al., 2023).

The tradition of teaching Latin and Greek in England and throughout Europe for centuries served as the foundation for the teaching of foreign languages. The grammars of Donatus and Priscianus were the only sources used in the Middle Ages to create the textbooks used to teach classical languages (Dolega & Niebler, 2018). Roman grammarian and rhetorical instructor Aelius Donatus lived in the middle of the 4th century (Donmus, 2010). Even though there are several approaches and techniques for learning foreign languages, a true revolutionary revolution in the ways that English is taught in the world didn't happen until the twentieth century (Elyas & Picard, 2010; Erlam et al., 2021). Goals and strategies have evolved. Everyone these days is taking foreign language classes. The number of ways

Received: August 03, 2024; Revised: August 17, 2024 Accepted: September 15, 2024; Online Available: September 20, 2024

has expanded in line with the population.

The classical or fundamental technique is one of the oldest. The aim of the traditional methodology is not so much to learn as it is to comprehend the nuances and specifics of the underlying ideas of a foreign language (George, 2008; Gilakjani et al., 2012). The creation of the studied language's grammatical base is the primary goal of the traditional method (Happ, 2013). Those who are starting to learn English "from scratch," from the fundamentals, are the intended audience. Those who first learned English in school will be very familiar with this method.

Yet, in recent years, a communicative approach has risen to the top of the list of the most well-liked techniques for teaching foreign languages, according to extras ratings and estimates. In both America and Europe, this method has shown to be successful. The communicative methodology arrived at us as it continued to rule the globe, earning a respectable spot in the top language colleges of the republic (Hrastinski, 2019; Huang et al., 2023). The approach is founded on the fusion of the conventional and contemporary approaches to teaching foreign languages. The communicative technique assigns communication a significant importance, as the name suggests. The removal of the language barrier is the fundamental objective of this approach (Rosyidin & Purwanto, 2024). The basic goal is to relieve someone of their phobia of.

One of the teaching methods in the classroom is student-centred learning. In order to get in-depth knowledge (deep learning) and enhance student quality, this strategy allows students the freedom to have the chance and resources to investigate their own expertise. SCL is in line with the challenge facing higher education institutions to create curricula in the 4.0 industry era to produce graduates with 21st-century skills, that is, HOTS (high-order thinking skills), which cover communication, collaboration, critical thinking, creative thinking, computational logic, compassion, and civic responsibility (Purwanto et al., 2023, 2024). Other three skill domains, such as learning innovation skills, career and life skills, and digital literacy skills which are connected to the needs of the 21st century, may be added to the traditional core skills. The four skill domains are what Kivunja refers to as the new learning paradigm.

According to Kembara and associates, children require 4C learning abilities to be able to face global issues (communication, collaboration, critical thinking, and creativity). Information, media, and technology are all covered under digital literacy abilities. The capacity to accurately assess, arrange, and comprehend the information corresponds to the demands. It examines intangible aspects of a student's daily life with an emphasis on both

professional and personal attributes. This comprises initiative, adaptability, leadership, productivity, and social skills.

2. LITERATURE REVIEW

Language Learning

Language learning is the process by which a person acquires the ability to understand, speak, read, and write in a specific language, both the mother tongue (L1) and a second or foreign language (L2). This process involves learning various aspects of the language, such as grammar, vocabulary, pronunciation, and communication skills (Ridayani & Purwanto, 2024). Language learning refers not only to the acquisition of linguistic knowledge, but also to the development of communication skills that allow individuals to use language in a variety of social and cultural contexts (Purwanto & Rosyidin, 2024). Language learning methods can vary, including formal learning in the classroom, independent learning, and interaction with native speakers (Afini et al., 2023). In the modern era, technology and experience-based approaches are increasingly playing an important role in improving the effectiveness of language learning, allowing students to access a wider range of language resources and interact globally.

Machine learning in Language Instruction

Machine language learning instruction refers to the application of machine learning technology in the language teaching process. It involves using computer algorithms that allow the system to "learn" from language data and provide more personalized and adaptive instruction to students. In this context, machine learning systems can analyze patterns in language, such as grammar, pronunciation, or vocabulary usage, as well as students' learning behaviors, to then provide recommendations or tasks accordingly (Agustinasari et al., 2022). This technology allows language learning to be more efficient by tailoring materials and challenges based on individual ability levels and progress (Aisyah, Despita, et al., 2024). Machine learning systems used in language teaching are often integrated into digital learning applications or platforms that offer interactive exercises, instant feedback, and student progress tracking (Aisyah, Hidayad, et al., 2024; Astirini Swarastuti et al., 2024).

Machine learning-based learning instruction also allows the use of big data to personalize the learning experience, by identifying specific areas of weakness or difficulty in each student and tailoring the learning content according to their needs (Bambang Purwanto & Hidayad, 2022). As such, students get a more effective and purposeful learning experience, which allows them to develop language skills more quickly (Bambang, 2017). In addition, this technology

provides wider access for students to learn independently, anytime and anywhere, using smart devices. This approach also supports collaborative learning by leveraging machine learning to connect students with native speakers or fellow learners around the world.

3. METHODS

This study uses a descriptive qualitative research methodology to show how a scenario relates to an indicator or the present condition of the findings in the field. A qualitative research process is the creation of descriptive data from people or observed behaviours as written or spoken words. In order to gather data and information for this study, interviewing and recording examinations of the pertinent data sources were the methods employed. This study draws on library research, which accumulates in-depth information on one or more topics. In this inquiry, primary and secondary sources are both utilised. The reason it is referred to as "library research" is that the data or materials needed to complete the research can be found in books, encyclopedias, dictionaries, journals, documents, magazines, and other items available in libraries. The readings utilized for this study can roughly be divided into two groups, namely: Textbooks, encyclopedias, monographs, and other wide sources of reference that frequently include general notions and concepts; Journals, research bulletins, theses, and other sources can be used as specific references.

4. RESULTS and DISCUSSION

Technologies for Language Instruct

With a variety of delivery methods, distant education has developed while adhering to various degrees of an Information Age definition of "distance education" that stresses two-way electronic contact. The technical characteristics and constraints of each format (FL) have an impact on the pedagogical decisions made while developing remote education courses for foreign languages. The World Wide Web and interactive television (ITV), which are currently the most popular distance learning mediums, are examined in relation to their applicability to FL education (Bonar Siagian & M Bambang Purwanto, 2023). ITV provides the most accurate representation of the in-person learning experience, but it also comes with significant practical challenges, especially when it comes to delivery across several time zones and institutions. The World Wide Web is widely available and reasonably priced, but due to limitations on media supporting spoken communication, it is better suited for advanced training in non-speaking abilities (Benson, 2001; Borja & Arlington, 2005). For beginning and intermediate FL training, distributed learning—which incorporates several media and may include a face-to-face

component—is the best distant learning option.

We hardly ever check our emails, visit Facebook or Twitter, read a journal article, or engage in any other online activity without coming across a brand-new tool, software, theory, or method of instruction that promotes the advantages of using digital technology with our pupils. How to most effectively use new digital tools in the classroom is one of the most discussed issues in education, from the flipped classroom to the gamification of curricula. Some modules look at this integration specifically in the context of teaching and studying foreign and second languages (Casey, 2001; Chan et al., 2011).

How can technology be used in conjunction with language training to improve English as a Foreign Language learning (EFL) is the main issue that needs to be addressed today. The crucial word here is "integrate," as the academic literature is replete with research in which technology is briefly tried but never integrated into the curriculum or instructional design. A researcher will frequently select a preferred platform or technology. The researcher then discovers features that might aid EFL learning, creates learning activities, and employs experimental or quasi-experimental approaches to establish outcomes. This is frequently done through quantitative surveys and qualitative interviews that focus on students' impressions (Dede, 2008). However, a lot of these studies have serious issues. The students don't like being treated like test subjects, studies frequently evaluate only student opinions rather than actual outcomes, there are frequently no control groups, and researchers frequently don't account for confounding factors. These and other issues are common in classroom settings where technology is used.

Software for Language Instruction

Software is a set of instructions that a computer may follow. Software is the umbrella term for all the applications, routines, and processes that make up a computer system. The term was coined to distinguish these instructions from hardware, or the actual components of a computer system. Programs are a collection of instructions that explain to a computer's hardware how to do a task. They are sometimes referred to as software programs (Diller, 1981).

Digital computers have not been used in safety-critical control loops for high-risk operations until recently due to a natural reluctance to introduce unknown and complex components (Dreyfus & Dreyfus, 2000). Yet, computers are increasingly being used to monitor and/or operate intricate, time-sensitive physical processes or mechanical systems, where a runtime error or failure could lead to human or environmental harm, loss of property, or even death. Due to the potential benefits of using digital computers, an increasing number of control activities that were previously solely performed by human operators or tried-and-true analogue

technologies are increasingly being assigned to them. Transportation, energy, aerospace, basic industries, health care, and defence systems are a few examples. For instance, today more than 80% of our military systems require computer software, compared to only 10% in 1955 (George, 2008; Geursen et al., 2010).

There are many justifications for integrating computers into settings that require safety. Digital computers have the potential to offer more adaptability and power, as well as better performance, more efficiency, and lower costs. The introduction of computers is rumoured to increase safety. The invention of the language learning laboratory excited educators and researchers much in the 1950s and 1960s. Many believed that students would finally achieve higher levels of competency in the foreign or second language than students who did not use the available technology by using high-tech tools in a shorter length of time. Not what researchers discovered. In hindsight, it is clear that there were issues with both the research and the software that was in use at the time. Without conducting any research on the most effective uses of the technology, materials were created, published, and distributed. As a result, both the teaching of foreign languages and the use of technology in language acquisition in general lost trust.

It is insufficient for teachers to spend a lot of money on tools in the hopes that their pupils will use them and improve their competency. In order to help pupils, attain their full potential, teachers must receive training in the proper use of technology. Instructors shouldn't randomly provide CALL programs to their students. Instead, a thorough evaluation of these materials is required to ascertain their value and soundness for instructional goals, as well as their usability for students. We shouldn't assume that just because a program has a certain feature, it will be used. We must conduct more research into how students use these programs if we want to fully comprehend the effectiveness of CALL.

Application for Language Instruction

An application is a type of software that lets the user engage with it directly to carry out certain tasks for them. An application's sole objective is to assist the user in carrying out specific tasks. Application software refers to any program that directs a machine to carry out user-provided commands while processing data on the user's behalf (Graham, 2006). Word processors, spreadsheets, database management, inventory, and payroll software are just a few examples of "applications" of software. Network software, which regulates communication between computers connected to a network, is the third category of software.

Websites for Language Instruction

Undoubtedly difficult but rewarding, language learning is an endeavour. Language learning

has become much more accessible and easier because to the growing use of web and mobile technology. We can't just read idly and conjecture about everything we are studying, from painting to another language. We must practice what we learn. We can practice our language skills by chatting, playing games, or watching entertaining films on interactive language websites. This not only increases the effectiveness of our study time; but it also inspires us to keep going.

From the convenience of our own sofa, we can now practice and learn a new language. There are numerous web-based resources and mobile apps that may be used to either start learning a new language from scratch or improve language proficiency. It is paid close attention to studying the English language in this article:

- **BBC Learning**

A number of resources are available from BBC Learning English for learning and teaching English, including articles on grammar, vocabulary, pronunciation, corporate English, daily English, free English courses, kids' English, and many other subjects.

- **Quizlet**

Quizlet assists students in learning anything through the use of flashcards and game-based quizzes, including languages. To share with their pupils, teachers can make their own flashcards. To find materials for studying English, we may use Quizlet's search option. As an illustration, if we type "English grammar" into the search field, we will have access to several study sets on the topic. To find resources made by instructors or other trustworthy providers, utilize search filters. Quizlet also provides five study modes: Test mode, write mode, Learn mode, and flashcards mode. The learning style of their choice is available to students. Both the Apple Store and the Google Play Store offer Quizlet. To find out more, read the entire Quizlet review

- **Duolingo**

An additional excellent resource for learning English is Duolingo. To help learners improve their reading, listening, speaking, and communication abilities, Duolingo provides bite-sized lessons. Courses on Duolingo include a variety of skills, 5 levels for each ability, and individual lessons for each level. We shall accumulate Crowns as we move through our lessons, whether we do it independently or through skill test-out (key icon). When we successfully master a skill, we will receive 5 Crowns because there are 5 levels in each skill. For iOS and Android, Duolingo has a mobile app as well.

- **FluentU**

Through the use of interactive real-world media, such as movie trailers, music videos, news, motivational speeches, and more, FluentU improves our language learning. Translations and subtitles have been added to the video captions. Any word in the video can be clicked by students to get a definition in context and example sentences. Quizzes are also included in the movies to help students develop their language skills and understanding. FluentU also offers an iOS and Android mobile app.

- **YouGlish**

YouGlish uses YouTube videos to teach English pronunciation to (ESL) students. It operates in a straightforward and basic manner: enter an English word and click "Say it." YouGlish returns videos of the word being used in conversational contexts. American English, Canadian English, Australian English, British English, Irish English, and Scottish English are just a few of the English accents that YouGlish offers. YouGlish now provides real-time captions for shared movies with the opportunity to click on any word in the caption to view its definition. Read the entire YouGlish review for more information.

Try these engaging, interactive language learning websites if you're ready to shatter the myth that learning a language is difficult and tedious. They will offer us an advantage and move you closer to our language proficiency objectives.

Machine for Language Instruction

Computers can calculate machine language, a low-level language composed of binary integers or bits. It is also referred to as machine code or object code, and it is quite difficult to understand. Machine language is the only language that computers are capable of understanding. Swift and C++ are examples of programming languages that generate or execute programs in machine code before being executed on a computer. Machine language is produced by even the simplest action and sent to the system CPU. As digital instruments, computers can only comprehend binary data. Binary encoding is used for all computer data, including movies, software, and graphics. The CPU processes this machine code or binary data. A program or operating system then obtains the output from the CPU and displays it visually. For instance, the letter "A" is displayed on the screen even though its machine-readable ASCII value is 01000001.

Machine language is the name for the language that computers can understand. It is the only thing that the computer can use, despite the fact that it is extremely difficult to understand. All programs and programming languages eventually translate into machine language. All of the commands and data in machine language are expressed as binary numbers. In order to make machine language a little bit easier to read, it is typically displayed in hexadecimal format. The

main distinction between machine language and assembly language is that names, not hex numbers, are used for addresses, variables, and instructions.

The basic building block upon which all programmable executions are constructed is machine language. The task of maintaining a large number of little numerical values that make up machine code instructions may have historically required programmers to tolerate tremendous difficulties, but modern assembly language technology has greatly simplified it.

Digital Media for Language Instruction

Digital technology has had a significant impact on practically all aspects of life in the twenty-first century, including education, of course. Teachers appear to have countless fresh options to use yet another digital tool or application in the classroom because to ongoing technology advancements. A trend that began with the growth of the Internet in the 1980s and culminated with the widespread use of digital media. We have been witnessing generations for a while now that have never known a world without the Internet. This phenomenon led to the phrase "digital natives" being created.

Digital media use in language classes is also not a recent development. Mobile-assisted language learning (MALL or MLL), which takes place in specifically created computer labs in schools, is replacing the conventional computer-assisted language learning (CALL) method. This is due to the fact that mobile devices, like laptops and smartphones, are both multipurpose and, as we have seen, ubiquitous. The use of digital media for language acquisition can inspire students, particularly if the activities are tailored to their needs and interests and fit with how they utilize digital communication in their daily lives.

However, given that this 'disruptive' technology has fundamentally altered how users and students work, there are obviously difficulties for schools. Schools must address concerns like ownership, privacy, and misuse as well as create the necessary regulations to promote the advantages of mobile technology in the classroom as well as control its drawbacks.

How Teacher Manages the Classroom in Digital Learning

One of the key components of classroom management in the digital learning environment was the use of technology, applications, learning materials, and digital devices to plan and implement learning activities that would encourage active learning, improve learners' higher order thinking skills (creativity, analysis, and problem-solving thinking), and boost their learning motivation and attitudes. In order to inspire students' learning, teachers arrange their lessons carefully, use the latest technology and instructional techniques, solve tricky circumstances, and set up engaging learning activities

The implementation of the educational process in the classroom was, however,

hampered by several restrictions related to digital literacy, the internet system, smart phones, and teaching activities. Therefore, it is crucial to alter the following aspects in order to increase the efficacy of teaching and learning activities: (1) In order for students to enjoy learning and not prefer an uninteresting learning environment, they need assistance and stimulation for their academic endeavors as well as the development of intellectual talents for the future. (2) The instructor is the key player in the process of learning development. Therefore, a teacher needs to be highly motivated. The fact that pupils want to learn and find learning to be effective serves as the teacher's motivation. Therefore, teachers must receive training so they can create lessons that are appropriate for their pupils and employ digital technology and contemporary tools in the classroom. Teachers that are skilled at teaching will be able to help their students develop similar skills. (3) It is necessary to have the infrastructure (i.e., technologies, furnishings, and tools) to enable learning. Administrators need to understand what technologies are useful, appropriate, and worth investing in, as well as how to prevent being duped into purchasing items that cannot be used efficiently. (4) Social media are effective instruments for creating a community of learners. Students adore using Lines, Facebook, and Twitter to present and share content or raise important questions. Therefore, it is important to offer these channels to aid in teachers' education. (5) There shouldn't be a preoccupation on any particular teaching strategies or tactics, such as A, B, or C, and one shouldn't do this or that. Teachers will be concerned because of the laws and restrictions. Instead, educators should be free to develop their own teaching methods. Anything that promotes active learning and adheres to the subject matter, pedagogy, and learning environments will work. (6) To assist and improve the effectiveness of learning activities in the classroom, technology designers should create a set of guidelines. This policy's components should include tasks, resources, and members of the learning community. Regarding this, it is important to identify the traits and functions of individuals (such as teachers, students, administrators, stakeholders, etc.), as well as their participation and interaction in the learning processes. The assignments should display the members' level of engagement, the planning process, the activities, the schedule, details of the members' responsibilities, and a teaching scenario. Additionally, instructions on how to use resources (such as tools, apps, and learning materials) could be given to assist participants in finishing their assignments. Additionally, it is vital to outline the phases and the execution process, as well as the foreseen problematic circumstances and appropriate solutions.

The Challenges of Technologies on Language Instruction

Digital learning resources (such as e-textbooks, e-gradebooks, interactive media) and mobile learning apps, including educational games and other mobile services, are included in

the broad area of digital language learning. The primary barriers to effective classroom technology integration are external factors that are beyond the control of the technology-using teachers. To address external hurdles, institutional changes must be implemented, and most advancements are incremental. To completely overcome these difficulties, more work will be required. This section outlines some of the external obstacles to the incorporation of technology in the classroom and offers solutions.

We talked about external impediments to integrating educational technologies in the classroom. We begin by discussing issues with insufficient technology or connectivity, sometimes known as the "access constraint." Insufficient computers or a slow internet connection prevent the use of instructional technology in classrooms. Next, the issue of insufficient technical training is raised. Insufficient professional development in using new technology will prevent teachers from utilizing them to their maximum potential. In our final section, we investigate the support constraint-related aspects. Technology integration barriers include those linked to peer support, administrative support, and inadequate technical support.

In the preceding paragraph, we discussed external barriers to the adoption of instructional technologies in the classroom. The challenges that are specifically relevant to teachers, their viewpoints, and their body of knowledge will now be covered. We will start by talking about second-order barriers, which are the attitudes and convictions of educators. If teachers don't think new technology would be beneficial or feel they lack the skills to use it, they are more likely to continue with more traditional methods. It is possible that teacher opposition, which is strongly related to attitudes and beliefs, will make it more difficult to integrate technology. Finally, we discuss the effects of instructors' technological proficiency and knowledge.

5. CONCLUSION

We've talked about the idea of critical digital literacy and how it applies to language instruction. We have also looked into the various ways that digital technologies may expand the learning options available to language learners. Being digitally literate (in any language) entails having a variety of skills, such as the ability to use digital tools in a critical, thoughtful, and productive manner. For learners to develop critical digital competence, teachers' digital literacy is essential. Non-digital media can be replaced or supplemented by technology, but it can also change or redefine the duties and activities that are done in the classroom. Digital tools can be effectively used into language learning activities that are communicative and awareness-raising. Instruction can be tailored to each student's unique interests and learning requirements using digital media. Through the use of digital media, opportunities can be created for social

language learning and interaction-based learning. Teenage students may value the kinds of educational opportunities that video games offer. Opportunities for learning outside of the classroom and for situated learning in particular physical, social, and cultural contexts can be made possible by digital technologies.

6. LIMITATION

This article may only focus on the technologies, software, and applications that are already available at the time of writing. Technology in this field is developing rapidly, so the article can become obsolete quickly. This article may not in-depth evaluate the pedagogical effectiveness of this language learning technology. The effectiveness of technology in supporting language learning needs to be measured more strictly with real results from students**.**

REFERENCES

Afini, V., Suratni, S., Kumalasari, C., Novia, F., & Purwanto, M. B. (2023). Language Learning Approaches: A Study Meta-Analysis of Vocabulary Mastery in EFL Learners. *Journal of Language Development and Linguistics*, *2*(2), 111–126. https://doi.org/10.55927/jldl.v2i2.5805

Agustinasari, E., Simanjuntak, T., & Purwanto, M. B. (2022). A Review on Error Analysis Stages in Teaching English Structure. *Pioneer: Journal of Language and Literature*, *14*(1), 253–268. https://doi.org/10.36841/pioneer.v14i1.1702

Aisyah, A., Despita, D., & Purwanto, M. B. (2024). The Implication of Paradigmatic and Syntagmatic Relations in Morphology to Language Teaching and Learning. *Language and Education Journal*, *9*(1 SE-Articles). https://doi.org/10.52237/lej.v9i1.695

Aisyah, A., Hidayad, F., & Purwanto, M. B. (2024). Effect of Grammar Learning Strategies (GLS) in Language Learning: Case Study on Vocational High School Students in Determining Proficiency Levels. *Wiralodra English Journal (WEJ)*, *8*(1 SE-Articles), 141–153. https://doi.org/10.31943/wej.v8i1.281

Astirini Swarastuti, Budiyanto, B., & M Bambang Purwanto. (2024). Management of English Learning to Improve Digital-Based Language Literacy Skills. *International Journal of Education, Vocational and Social Science*, *3*(01 SE-Articles), 202–215. https://doi.org/10.99075/ijevss.v3i01.672

BAMBANG, P. (2017). The Correlation Among Parents‘ education, Income, Motivation and English Learning Achievement of The State Junior High School 27 of Palembang. *JAMBI-ENGLISH LANGUAGE TEACHING*, *2*(1), 8–12. https://doi.org/10.22437/jelt.v2i1.3663

Bambang Purwanto, M., & Hidayad, F. (2022). English Learning Strategies for Vocabulary Mastery. *English Education:Journal of English Teaching and Research*, *7*(2 SE-), 178–

189. https://doi.org/10.29407/jetar.v7i2.18457

Benson, P. (2001). Teaching and researching autonomy in language learning. Harlow. In *Pearson Education*.

Bonar Siagian, & M Bambang Purwanto. (2023). Lextutor English Learning Pronunciation and Vocabulary: A Language Data Base Program . *PUSTAKA: Jurnal Bahasa Dan Pendidikan*, *4*(1 SE-Articles), 116–130. https://doi.org/10.56910/pustaka.v4i1.1062

Borja, R. R., & Arlington, V. (2005). Podcasting craze comes to K-12 schools. *Education Week*, *25*(14), 8.

Casey, J. (2001). *Technology Empowers Reading and Writing of Young Children. (EJ667639)*. ERIC. https://eric.ed.gov/?id=EJ667639

Chan, W. M., Chi, S. W., Chin, K. N., & Lin, C. Y. (2011). Students' perceptions of and attitudes towards podcast-based learning: A comparison of two language podcast projects. *Electronic Journal of Foreign Language Teaching*, *8*(1), 312–335.

Dede, C. (2008). *The Role of ICTs in the evolution of graduate education*. Washington DC council of graduate Schools.

Diller, K. C. (1981). Neurolinguistic clues to the essentials of a good language teaching methodology: Comprehension, problem solving, and meaningful practice. *The Comprehension Approach to Foreign Language Instruction*, 141–153.

Dolega, L., & Niebler, L. (2018). Java language has been used for 23 years. It first appeared in 1995. James Gosling, Mike Sheridan, and Patrick Naughton, also known as the "Green Team" group, introduced the Java. *Power*.

Donmus, V. (2010). The use of social networks in educational computer-game based foreign language learning. *Procedia - Social and Behavioral Sciences*, *9*, 1497–1503. https://doi.org/10.1016/j.sbspro.2010.12.355

Dreyfus, H., & Dreyfus, S. E. (2000). *Mind over machine*. Simon and Schuster.

Elyas, T., & Picard, M. (2010). Saudi Arabian educational history: impacts on English language teaching. *Education, Business and Society: Contemporary Middle Eastern Issues*, *3*(2), 136–145. https://doi.org/10.1108/17537981011047961

Erlam, R., Phip, J., & Feick, D. (2021). Digital Media in the Language Classroom. *Teaching Languages to Adolescent Learners from Theory to Practice*, 135–157. https://doi.org/10.1017/9781108869812.008

George, M. W. (2008). *The elements of library research: What every student needs to know*. Princeton University Press.

Geursen, J., de Heer, A., Korthagen, F. A. J., Lunenberg, M., & Zwart, R. (2010). The Importance of Being Aware: Developing professional identities in educators and researchers. *Studying Teacher Education*, *6*(3), 291–302. https://doi.org/10.1080/17425964.2010.518685

Gilakjani, A. P., Lai-Mei, L., & Sabouri, N. B. (2012). A study on the role of motivation in foreign language learning and teaching. *International Journal of Modern Education and Computer Science*, *4*(7), 9. https://doi.org/10.5815/ijmecs.2012.07.02

Graham, C. R. (2006). Blended learning systems. *The Handbook of Blended Learning: Global Perspectives, Local Designs*, *1*, 3–21.

Happ, D. W. (2013). *Results of a survey of 21st century skills of communication, collaboration, critical thinking, and creativity*. American International College.

Hrastinski, S. (2019). What do we mean by blended learning? *TechTrends*, *63*(5), 564–569.

Huang, X., Zou, D., Cheng, G., Chen, X., & Xie, H. (2023). Trends, research issues and applications of artificial intelligence in language education. *Educational Technology & Society*, *26*(1), 112–131. https://doi.org/10.1080/09588221.2021.1879162

Purwanto, M. B., Hartono, R., & Wahyuni, S. (2023). Essential Skills Challenges for the 21st Century Graduates: Creating A Generation of High-Level Competence in The Industrial Revolution 4.0 Era. *Asian Journal of Applied Education (AJAE)*, *2*(3), 279–292. https://doi.org/10.55927/ajae.v2i3.3972

Purwanto, M. B., & Rosyidin, I. (2024). The Profile of a Prospective Teacher Candidate's Digital Literacy: A Case Study on Faculty of Teacher Training and Education of PGRI University of Palembang. *LIMEEMAS: Jurnal Ilmiah Pendidikan*, *2*(1 SE-Articles), 35–45. https://ejournal.apmapi.or.id/index.php/Limeemas/article/view/25

Purwanto, M. B., Yuliasri, I., Widhiyanto, W., & Rozi, F. (2024). Primary School English Education In The Age Of Industry 4.0: Tackling Challenges, Expanding Horizons. *Proceedings of Fine Arts, Literature, Language, and Education*, 859–873.

Ridayani, R., & Purwanto, M. B. (2024). Enhancing Speaking Skills Through Role Play and Multimedia Technology . *Refleksi: Jurnal Penelitian Tindakan*, *2*(2 SE-Articles), 33–43. https://doi.org/10.37985/refleksi.v2i2.413

Rosyidin, I., & Purwanto, M. B. (2024). Implementation of System Comparative Linguistics: An Overview in Language Learning. *Journal of English Teaching and Linguistics*, *1*(01), 35–45. https://jetli.yupind.com/index.php/jetli/article/view/6

Umar, U., Purwanto, M. B., & Al Firdaus, M. M. (2023). Research And Development: As The Primary Alternative to Educational Research Design Frameworks. *JELL (Journal of English Language and Literature) STIBA-IEC Jakarta*, *8*(01), 73–82. https://doi.org/10.37110/jell.v8i01.172

Online ISSN : 3048-0841,Print ISSN : 3048-0833, Page. 27-40