

Technological Interventions in English Pedagogy: A Comprehensive Analysis of Their Influence on Teaching and Learning of the English Language

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ABSTRACT

Technology literacy has become increasingly important in the context of teaching and learning English, especially with ongoing technological advancements. This study aims to examine the impact of technology on English education by analyzing recent literature on the subject. A systematic literature review was conducted using the Scopus database to collect relevant research on technology's role in English teaching and learning. The search initially identified 257 documents, narrowed down to 20 based on publication year and relevance to the topic, ensuring a focus on high-quality sources. Analysis of the selected studies revealed that technology significantly enhances the efficiency of English teaching and learning. Key findings indicate that technology facilitates greater access to educational resources, while multimedia tools and digital platforms offer interactive and engaging ways to support language acquisition. Furthermore, teachers' proficiency with these tools is shown to correlate positively with student learning outcomes. The findings underscore the importance of technology literacy among English educators, as their skill in using technological media directly impacts students' learning results. Enhanced access to resources and multimedia-supported instruction not only enriches the educational experience but also aligns with modern learning preferences, suggesting a need for continued integration of technology in English education. This review highlights that technology in English teaching promotes resource accessibility and student engagement, ultimately improving learning outcomes. Continued development of teachers' technological skills is recommended to fully realize these benefits.

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1. INTRODUCTION

The development of technology and media has a great impact on the English learning process. Many English teachers use media such as audio, images and video to facilitate students' understanding of the material (Karthika & Selvam, 2022; Qadha & Alward, 2020; Riswanto et al., 2022; Yen et al., 2022). Audio media is referred to sense of hearing such as radio broadcasts, cassette tapes, foam tapes, and compact

disk. Images media is referred to sense of visual senses. Two categories of image media are verbal and nonverbal. The example is pictures, graphs, diagrams, charts, maps, comic, posters, visual boards and magazines. While the video media involves both the sense of audio and visual such as video compact disks and television. In learning process, media will make it more interesting and enjoyable (Galvis, 2018; Goodyear et al., 2023; Haleem et al., 2022; Singh et al., 2021). Therefore, English teachers must have an ability in technological, pedagogical and content knowledge so that they can utilize media and technology to help learners improve their language skills based on their needs.

In this globalization era, the ability to speak English is an important requirement in the work and education field. Therefore, improving the quality of teaching English is an essential need (Malkawi et al., 2023; Shamsitdinova, 2021). Utilizing technology and media to teach English can help English teachers improve their teaching (Al-Bargi, 2021; Durongbhandhu & Suwanasilp, 2023; Riswanto et al., 2022) and improving the character of education in many countries (Alakrash & Abdul Razak, 2021; Gerova et al., 2018). The use of technology and media in teaching English can also help identify the needs of English teachers and improve the Educational infrastructure (Loh et al., 2021). In a recent year, media and technology applied to teaching English can also help English teachers overcome the challenges of online learning.

Since the Covid-19 pandemic outbreak emerged, e-learning has become very often used, and English teachers have been forced to use technology and media to teach the language (Al-Bargi, 2021; Oksana Andriivna et al., 2020; Ubaedillah et al., 2021). Unfortunately, most of the teachers doesn't have the necessary skills and access to technology and media to teach the language. It's found that utilizing media and technology in the classroom is challenging for English teachers. The problem faced is caused by a lack of technological tools and a lack of teacher training to assist students in using technology (Erbas et al., 2021). Inappropriate educational infrastructure shows that media and technology have not been taken seriously as a factors for improving learning.

Several studies have shown that technology has a positive influence on teaching and learning English. According to Thompson & von Gillern's (2020) research, learning through video games significantly improves learners' vocabulary mastery. Meanwhile Hao et al. (2021) discovered that students' long-term vocabulary retention is increased when they use mobile phones in class unrestricted. Indeed, exposure to screen media and vocabulary in children ages are often positively correlated (Jing et al., 2023). Overall studies demonstrate that students' vocabulary in English can be improved by the usage of English media learning. Mobile-based language learning has had the biggest impact on listening as well as vocabulary acquisition (Alsowat, 2020). If media development is applied to speaking activities, it will also be beneficial (Diner et al., 2021). Additionally, media use improves students' academic performance in terms of academic assignments, piques their curiosity, and boosts their confidence while utilizing the English language in higher education (Asif et al., 2022). These studies show the positive effects of media on students' language proficiency and academic achievement during the language acquisition process.

A few researchers focused on English media learning. There have been limited studies concerned on technological pedagogy specific to language teaching. Therefore, this research intends to analyze how technological pedagogy research on language teachers published from 1986 to 2023. The research questions comprise as follows:

RQ1: How can the use of technology increase the effectiveness of teaching and learning English?

RQ2: How does the use of media and multimedia resources influence the teaching of English?

RQ3: How does the English teacher's ability to use the media influence the teaching of English?

2. METHODS

A systematic literature review approach is applied in this study. Systematic literature review means a synthesis of all literature on a subject or issue formulation (Calderón & Ruiz, 2015; Kitchenham, 2004). By methodically searching for, assessing, and interpreting the relevant review literature. The research object refers to the discussion about teaching and learning English, it is necessary to be research because

the development of technology and media has created many opportunities to improve the effectiveness of English teaching and learning.

2.1. Search Literature

This literature review is an in-depth examination of previously selected research articles on the same subject or with a similar theme. The period covered by this literature review is 1986 to 2023. All information presented is based on previous research. Data sources in this research is publications from international journals with predetermined topics. The scopus database was used to perform this literature search. It has been determined that "teaching and learning english" is the correct search term using English. The search procedure retrieves relevant sources from the scopus database to address the problem formulation (RQ). Using the results of the identification procedure, data were determined from 257 scopus items.

2.2. Data Collection

During this phase, the necessary information for research is collected. This study collects all information from the scopus database <https://www.scopus.com>. The process of collecting information is as follows:

1. Make a visit to the database <https://www.scopus.com>.
2. Then type "teaching and learning English" which is the keyword for the search level. Look at Figure 1.

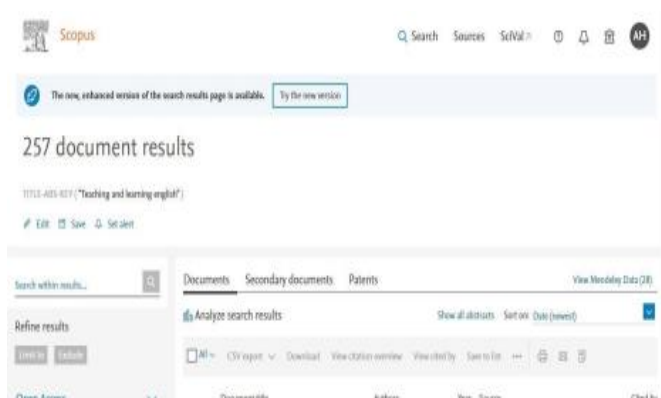


Figure 1. Keyword search phase on scopus

2.4. Quality Assessment

A number of qualities assessment methods are used to evaluate the quality of the data that has been obtained in this literature study.

QA1: is the article in the year of publication between 1986 and 2023?

QA2: do the articles that have been found discuss or are similar to the theme regarding Teaching and learning English?

QA3: are the articles related to media and technology in English?

For each query mentioned above, the response values of each document are given below. However, article that do not meet the quality assessment will not be displayed in the presentation.

Y (Yes) : for issues and methods published in compliance of quality assessment

T (No) : for issues and procedures that are not appropriate

✓ : for data that passed the quality assessment

Table 1. Selected data according to quality assessment

No	Authors	Title	Year	QA1	QA2	QA3	Result
1.	Durongbhandhu, N., Suwanasilp, D.	Computer-assisted English Lessons for Logistics with Task-based Language Teaching for Enhancing Receptive and Productive Vocabulary Knowledge of EFL Thai Learners	2023	Y	Y	Y	✓
2.	Hung, C.-Y., Lin, Y.-T., Yu, S.-J., Sun, J.C.-Y.	Effects of AR- and VR-based wearable in teaching English: The application of an ARCS model-based learning design to improve elementary school students' learning motivation and performance	2023	Y	Y	Y	✓
3.	Malkawi, N., Rababah, M., Al Dalaen, I, Alkhalidi, A.A., Rabab'ah, K.	Impediments of Using E-Learning Platforms for Teaching English: A Case Study in Jordan	2023	Y	Y	Y	✓
4.	Qassrawi, R.M., Al Karasneh, S.M.	Benefits of Facebook Usage (as a Web 2.0 Application) in Foreign Language Instruction in Higher Education: A Meta-Analysis Study	2023	Y	Y	Y	✓
5.	Peixoto, B., Bessa, L.C.P., Goncalves, G., Bessa, M., Melo, M.	Teaching EFL With Immersive Virtual Reality Technologies: A Comparison with the Conventional Listening Method	2023	Y	Y	Y	✓
6.	Riswanto, R., Santiana, S., Inderawati, R., Kasmainsi, K., Sari, N.P.	Preparing Vocational High School Students' 21 st Century Skills Needed through Pair Work Strategy and YouTube Channel Integration	2022	Y	Y	Y	✓
7.	Thao, L.T., Yen, P.H., Khang, N.D., Khoi, V.T.M., Quyen, B.N.	Digital Drama Technique in English as a Foreign Language Teaching and Learning: From Viewers' and Actors' Perspectives	2022	Y	Y	Y	✓
8.	Pham, A.T.	Engineering Students' Perception of Using Webcams in Virtual English Classes	2022	Y	Y	Y	✓
9.	Chen, M.-L.	The Impact of Mobile Learning on the Effectiveness of English Teaching and Learning - A Meta-Analysis	2022	Y	Y	Y	✓

No	Authors	Title	Year	QA1	QA2	QA3	Result
10.	J, K., Selvam, V.	Accessible and engaging voices: Teaching English to adult second-language learners with visual impairment using WhatsApp voice notes in India	2022	Y	Y	Y	✓
11.	Alakrash, H.M., Razak, N.A.	Technology-based language learning: Investigation of digital technology and digital literacy	2021	Y	Y	Y	✓
12.	Al-Bargi, A.	Elt online teachers' professional development during the covid-19 pandemic outbreak: Perceptions, implications and adaptations	2021	Y	Y	Y	✓
13.	Indrawati, D., Sabiah, I.	Using virtual badges as a reward system to encourage student participation in English classes: Understanding student motivation	2013	Y	Y	Y	✓
14.	Wang, Y.-C.	Promoting English Listening and Speaking Ability by Computer-Supported Collaborative Learning	2020	Y	Y	Y	✓
15.	Shahrol, S.J.M., Sulaiman, S., Samingan, M.R., Mohamed, H.	A systematic literature review on teaching and learning English using mobile technology	2020	Y	Y	Y	✓
16.	Qadha, A.M.H., Alward, M.A.	The effect of using videos in teaching and learning English present progressive tense	2020	Y	Y	Y	✓
17.	Aljaraideh, Y.A.	The impact of digital storytelling on academic achievement of sixth-grade students in English language and their motivation towards it in Jordan	2020	Y	Y	Y	✓
18.	Yip, F.W.M., Kwan, A.C.M.	Online vocabulary games as a tool for teaching and learning English vocabulary	2006	Y	Y	Y	✓
19.	Meyer, B., Sørensen, B.H.	Educational design of serious games - In the research field of computer-assisted language learning	2008	Y	Y	Y	✓

No	Authors	Title	Year	QA1	QA2	QA3	Result
20.	Lawrence, R., Chang, C.	Videoconferencing using SCOPIA for teaching and learning English as an additional language -Pedagogical and technological observations	2012	Y	Y	Y	✓

Based on Table above, it shows that only 20 articles met the modified requirements for the overall quality assessment and evaluation stages. The results of the data collection are mostly in the form of articles and books that meet the specified quality assessment.

2.5. Data Analysis

Based on the article results and quality assessment the data is analyzed. The researcher used Nvivo 12 Plus as a data analysis tool. Nvivo is an effective tool for managing and analyzing qualitative content analysis research data in relation to this research.

2.6. Deviation from Protocol

As a result of research, the authors made the following changes to ensure they conform to the following report repository:

1. This study covers topics related to teaching, English, technology, media, and answering the problem formulation (RQ).
2. Compile articles to answer questions, ensure quality, and provide the required data.

3. FINDINGS AND DISCUSSION

3.1. Technology can increase the effectiveness of teaching and learning English

The use of technology in teaching and learning English can provide many benefits and improve teaching and learning process. Technology can improve the effectiveness of teaching and learning English in the following ways: Adaptive learning, interactive teaching, ease of communication, access to learning resources, using technology, accelerating feedback, and continuous learning. All of these topics are based on Nvivo coding. See Figure 2.

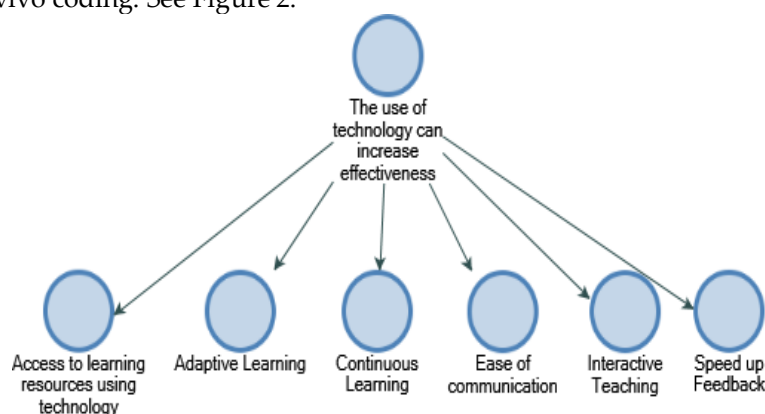


Figure 2. Nvivo coding result using technology to improve English Learning

The results of the study demonstrate that technology use can result in adaptive learning. Adaptive learning is a technology-based learning system adapted to the abilities and students need. Technology can assist instructors in developing individual learning programs for each student. This program can

provide appropriate practice and assist students in correcting their English skill deficiencies (Alakrash & Abdul Razak, 2021; Lawrence & Chang, 2012; Peixoto et al., 2023; Shahrol et al., 2020).

The use of English learning applications that can respond directly to student responses can facilitate a more interactive learning. This can help improve student learning outcomes and increase student engagement. Through technologies such as video conferencing and chat applications, students can communicate in English with teachers and peers from around the world. It will improve students speaking and listening skills (Hung et al., 2023; Karthika & Selvam, 2022; Qadha & Alward, 2020; Qassrawi & Al Karasneh, 2023).

Using technology, teachers can provide feedback to students more quickly and efficiently, such as via email or messaging apps. Technology enables continuous learning, allowing students to learn English anytime and anywhere. Students can study English at their leisure, such as while traveling or at home, by using English learning apps (Al-Bargi, 2021; Qadha & Alward, 2020; Yip & Kwan, 2006)

Learning in general will be more effective if it is carried out through learning models and learning strategies which involve information processing in their activities, so that students can think more critically and scientifically. With the help of media and technology, teachers who have roles as a facilitators, motivators and evaluators in learning can create interactive teaching for students. Where students have the opportunity to learn to build their own knowledge.

The result of the analysis determines that the use of technology in teaching and learning English can increase the efficiency of the teaching and learning process by providing access to learning resources, adaptive learning, interactive teaching, ease communication, faster feedback, and continuous learning.

3.2. Technology can increase the effectiveness of teaching and learning English

Media and multimedia resources can improve students learning results and offer a number of advantages while teaching English. Following are some of the benefits based on an analysis using Nvivo; increasing student engagement, enriching the learning experience, improving speaking and listening skills, facilitating text comprehension, increasing information retention, and providing feedback. See in Figure 3.

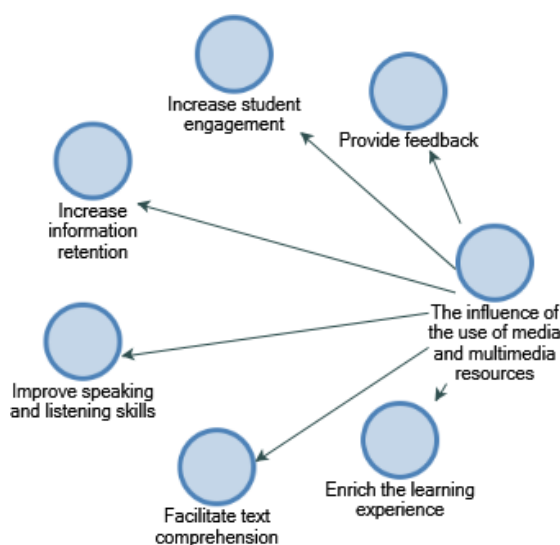


Figure 3. Topic visualization based on the Nvivo code

As suggested by the results, media and multimedia resources, including videos, pictures, and presentations, can increase student involvement in learning and help their understanding of the material being taught. Students can enhance their learning experience by looking at pictures, watching videos, and listening to audio. This can improve and enrich their understanding of the material (Karthika & Selvam, 2022; Peixoto et al., 2023).

Through the use of multimedia media and resources, as well as by watching and hearing examples of proper pronunciation, the use of media and technology in language learning can also help students' speaking and listening abilities in English. Media and multimedia resources can help students understand English texts better. For example, pictures can be used to illustrate the meaning of difficult words or phrases (Hung et al., 2023; Kim & Kang, 2016; Lawrence & Chang, 2012; Meyer & Sørensen, 2008; Yen et al., 2022).

Utilizing media and technology in language learning can also improve students' information retention in English by visualizing the content being taught using multimedia media and resources. In English classes, multimedia resources and media can provide students with immediate feedback by enabling them to record and listen to their own voices or view their own video presentations (Al-Bargi, 2021; Karthika & Selvam, 2022; Malkawi et al., 2023; Peixoto et al., 2023; Pham, 2022)

Overall, it can be said that the use of multimedia resources and media in English classes has many benefits and can have a positive impact on student learning outcomes. This can help increase student engagement, enhance the learning experience, improve speaking and listening skills, facilitate comprehension of texts, increase information retention, and provide feedback.

3.3. The effect of the English teacher's ability to use the media

The ability of English teachers to use media can affect students result study. Here are some of the influences of the English teacher's ability to use media based on the Nvivo coding. The themes found included increasing teaching effectiveness, increasing student interest and motivation, improving students' visualization skills, improving students' multimedia skills, and improving student learning outcomes. See Figure 4.

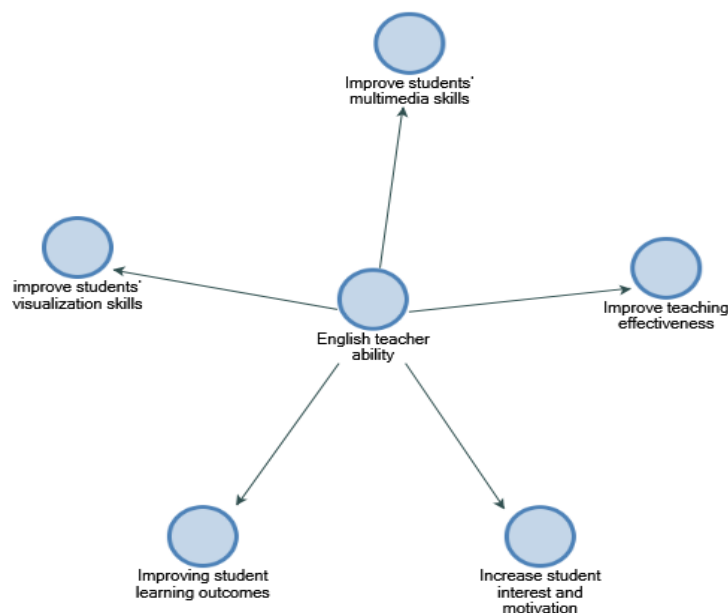


Figure 4. Themes based on Nvivo coding

The result shows that English teachers who are proficient in the use of media can increase teaching effectiveness by exposing students to a variety of interesting and useful technologies and media. Increasing students' interest and motivation with media used by English teachers can help students maintain interest and motivation in learning English, enabling them to become more active and involved in learning (Chen, 2022; Indrawati & Sabiah, 2012; Peixoto et al., 2023)

Media such as videos and images help students visualize English concepts and situations, making it easier to understand and remember the content. By using media to teach English, teachers can help students develop practical multimedia skills, such as creating presentations, videos and websites, which can be applied to future learning activities. Utilizing media in English can also help students

achieve better learning outcomes, improve speaking, listening, reading, and writing skills (Akbari et al., 2018; Hung et al., 2023; Kim & Kang, 2016; Meyer & Sørensen, 2008; Qadha & Alward, 2020; Yen et al., 2022).

Overall, the teacher's ability to use media is directly proportional to the effectiveness of teaching by the teacher. However, inappropriate use of media by English teachers can also have negative consequences. Some of these negative impacts include the use of media that does not suit students' needs, and the use of too much media causes students to become exhausted (Fox & Bird, 2017; Loh et al., 2021).

Therefore, English teacher training regarding the use of media and technology must always be held because it can have an impact on their study results. The positive impact of the English teacher's proficiency in media use is also inseparable from the negative impact. Therefore, it is essential for English teachers to develop their ability to use media effectively, according to the needs of their students.

4. CONCLUSION

Utilizing technology in English can increase the efficiency of the teaching and learning process by providing access to learning resources, adaptive learning, interactive teaching, simpler communication, faster feedback, and continuous learning. Utilizing multimedia resources and media in teaching English can provide many benefits and affect students study results. This can help increase student engagement, enhance the learning experience, improve speaking and listening skills, facilitate comprehension of texts, increase information retention, and provide feedback. Therefore, it is very important for English teachers to develop the ability to use media effectively and according to the needs of their students. This study has research limitations. This study only discusses the impact of media and technology in English, so further research needs to examine the limitations and barriers of the use of media and technology. In addition, the articles in this study have only been obtained from the scopus database. Further researchers should be able to find various library sources.

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