ENGLISH TEACHERS' TECHNOLOGICAL KNOWLEDGE AND SOME BARRIERS ON IT: THE BASIS FOR DEVELOPING TPACK TEACHING MODEL

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Article Info	Abstract
Article History Received: November 2023 Revised: December 2023 Published: January 2024	Along with the dynamic development of technology and the need for technology integration in today's learning, technology has become an important element in educational organizations. programs and applications that have been mastered by teachers, namely PowerPoint, Google Translate
Keywords Technological Knowledge; TPACK model;	Google Doc, the internet, and all forms of technological offerings can undoubtedly support the blended learning pattern which then becomes a learning necessity. Teachers' content and and pedagogical knowledge must be supported by their technological knowledge. The aim of this research is to conduct qualitative research by means of doing semi-structured interview and checking teachers' daily journals about technologies applied in their teaching and learning processes and also the problems of applying those technologies. It was found that there are some technologies commonly used as the instruments of teaching by those 10 teachers in their teaching and learning processes after the pandemic such as: Google Meet, Google Classroom, and WA Group. Next to that, it was also found that there are some common barriers experienced by the teachers in the application of those technologies, such as: hardware and software problems, connectivity, financial problem, protection of personal information, technical support, lack of face-to- face interaction, psychological problems, and language barrier. The result if this research is expected that it can be used as the basis to develop appropriate technologies for teaching English for students to support their CK and PK regarding the implementation of TPACK at school.

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INTRODUCTION

Technological knowledge has been a crucial issue to solve, particularly since pandemic or even after the pandemic. This issue is very urgent thing to solve as teachers are faced by the situation where they have to teach students from the distance. The technological knowledge of teachers then becomes one of important things as technology has to be integrated in teaching and learning processes, in this case English (Tseng et al., 2022; Nguyen et al., 2022). The real problem found on many teachers is that they have got enough content and pedagogical knowledge, but as they have to integrate technology in teaching, it has become problem for some teachers with lack of TK (Anderson et al., 2013; Kapici & Akcay, 2023). This problem has to be identified from the beginning in which it is expected that the result of this research is beneficial for the development of teaching model in which appropriate technology is integrated in it.

The issue of post-pandemic in education is an important part that is affected and really requires the readiness of all elements in it, including teacher competence, as (Lase, 2019) states

that the competencies that teachers must have because education is the part that is affected, include: educational competence, competence for technology commercialization, competence in globalization, competence in future strategy, and counselor competence. Based on this, it can be noted that technology is an important element after the pandemic as part of the learning elements that have become a necessity. An ideal expectation in online learning is that a teacher is expected to be able to master technology or have technological knowledge where this knowledge is the teacher's knowledge of various technologies ranging from simple technology to advanced technology and the ability to use them in education (Amankwa, 2021; Kidd & Morris, 2017). Yulisman, et al (2019) also found that teachers as research subjects already have content abilities (CK), pedagogical abilities (PK) in learning, but they still really need attention and guidance in understanding technology (TK).

The pivotal prerequisite for the successful organization of distance learning activities lies in the teacher's virtual maturity, as posited by Prayetno et al. (2022) and Parra et al. (2019). This proficiency encompasses the capacity of educators to adeptly navigate and orchestrate virtual learning environments, thereby ensuring that students can effectively engage with and respond to the instructional content prepared by the teacher. Despite the ideal aspiration for enhanced virtual maturity, several challenges emerge inextricably linked to the technological expertise and supporting elements of teachers. Foremost among the challenges is the inadequacy of technological facilities and infrastructure that underpin both offline and online learning processes, as well as blended learning modalities, as highlighted by Makawawa (2021). The deficiency in requisite technological resources poses a substantial obstacle to the seamless implementation of distance learning initiatives.

The availability of robust technological facilities is imperative to facilitate the effective delivery of educational content and the engagement of students in diverse learning environments. Additionally, the realization of virtual maturity confronts challenges emanating from the volition, motivation, and commitment of teachers to integrate technology as an integral facet of pedagogical innovation. Luis (2000) and Yanis & Yuruk (2021) expound on the importance of teacher will in embracing technology and its incorporation into the educational landscape. The motivational and commitment aspects of teachers play a pivotal role in determining the extent to which technological tools are effectively utilized to enhance the learning experience, thereby influencing the overall success of distance education initiatives. In essence, while the virtual maturity of teachers is acknowledged as indispensable for effective distance learning, the actualization of this ideal is impeded by challenges encompassing technological resources and the motivational commitment of educators. Addressing these challenges necessitates concerted efforts in bolstering technological infrastructure and cultivating a disposition of enthusiasm and dedication among teachers, thereby fostering an environment conducive to the seamless integration of technology into pedagogical practices.

School management support is very necessary to support the smooth running of cyberbased learning, where the ability of kindergarten teachers must be the main concern in addition to other supporting facilities and infrastructure. TPACK Model as part of the learning model, the core of TPACK is to understand how to use technology to teach concepts in a way that enhances students' learning experiences (The TPACK Framework Explained (With Classroom Examples) | PowerSchool). TPACK (Technological, Pedagogical, and Content Knowledge) is a learning model that integrates elements of technology, pedagogy, and content to improve student competence. The emphasis on introducing technology to students in learning will greatly support learning and the delivery of material to students. Based on this, the teacher's kindergarten abilities must be a top priority before they are then applied to students. TPACK is present as a solution offered in this research so that it is hoped that kindergarten teachers' abilities can be a solution for learning in an era that prioritizes technology like today.

The primary objective of this research is to systematically investigate the technologies employed by educators within classroom settings, concurrently identifying the barriers they encounter in the application of these technologies. The outcomes of this inquiry hold significance as they are intended to serve as foundational insights for the development of technology solutions tailored to the specific needs and preferences of teachers in their instructional practices. The research is thus positioned as a critical undertaking to inform the design and implementation of technology that aligns seamlessly with the pedagogical context, ultimately enhancing the quality and efficacy of teaching. To achieve the overarching goal, two specific research questions have been formulated. Firstly, the investigation seeks to elucidate the diverse array of technologies utilized by teachers in the course of their instructional activities. This encompasses an exploration of the various tools, applications, and digital resources that educators integrate into their teaching methodologies. The comprehensive understanding derived from the answers to this question can contribute to discerning patterns and preferences in technology adoption among teachers. Concomitantly, the research aims to address the second research question, which pertains to the barriers confronted by teachers in the process of applying technologies in their teaching endeavors. By delving into the challenges experienced by educators, the study aims to unearth impediments that may hinder the seamless integration of technology into instructional practices. This dual-pronged investigation is poised to yield nuanced insights that are instrumental not only in understanding the technological landscape within educational contexts but also in steering the development of targeted solutions that ameliorate challenges encountered by educators in leveraging technology for pedagogical enhancement.

RESEARCH METHOD

Research Design

The current study employs a qualitative research design to systematically investigate and comprehend the intricate dimensions associated with teachers' technological knowledge and the barriers they encounter in its application. The primary objective is to provide a comprehensive understanding of the multifaceted nature of the data pertaining to teachers' technological knowledge and the impediments they face. The collected data serve as a foundational resource for the development of teaching materials grounded in the Technological Pedagogical Content Knowledge (TPACK) framework. Diverging from the quantitative research paradigm, which predominantly concentrates on numerical data and statistical analyses, this study adopts a qualitative approach. This methodological choice is deliberate, as it seeks to delve into the nuanced and intricate facets inherent in teachers' technological knowledge and the challenges they confront. The study aspires to glean profound insights into the specific dimensions of technological knowledge possessed by teachers and the various obstacles impeding its effective integration into educational practices. Through this qualitative exploration, the research aims to contribute to a more holistic and contextually grounded comprehension of the complex interplay between technological proficiency and the challenges faced by educators.

Research Participants

The participants in this research comprised twenty English teachers from Junior High Schools situated in Central Lombok. The selection criteria for these subjects were deliberate and aimed at encompassing educators who demonstrated proficiency in employing diverse technological instruments to augment their teaching and learning endeavors. Specifically, the chosen teachers were those who adeptly integrated technological tools in both online and offline classes, a practice that remained consistent during and subsequent to the pandemic period. Noteworthy is the inclusion of instructors who engaged in research activities pertaining to the enhancement and application of their technological knowledge, particularly in the formulation and delivery of instructional materials within their classrooms. Importantly, these educators hold the designation of certified teachers within their respective school settings, denoting a certain level of professional expertise and experience. The deliberate inclusion of certified teachers contributes to the research's focus on individuals with established pedagogical credentials, thereby ensuring a robust exploration of the intersection between technological integration and pedagogical proficiency in the context of English language instruction at the Junior High School level in Central Lombok.

Research Instruments

Data in this study were gathered through the utilization of semi-structured interview guidelines as instruments for inquiry. These guidelines were thoughtfully crafted to encapsulate a comprehensive exploration of the technologies integrated into the teaching and learning methodologies employed by the participating teachers. The instrument's contents were meticulously designed to elicit detailed information regarding the specific technological tools and platforms employed by educators in their instructional practices. Moreover, the guidelines delved into the nuanced challenges encountered by both teachers and students in the utilization of these technologies. This intentional design allowed for a thorough examination of the multifaceted landscape of technological integration in educational settings, encompassing not only the applications utilized but also the obstacles confronted during their implementation. The semi-structured nature of the interviews provided a balance between predetermined topics and the flexibility to explore emergent themes, ensuring a rich and nuanced understanding of the complexities surrounding the application of technology in teaching and learning processes.

Data Analysis

This research was structured to address two distinct inquiries. The primary research question sought insights into the technological instruments employed by English teachers in their classrooms during and post the pandemic era. To systematically investigate this aspect, the data pertaining to the first research question underwent meticulous analysis using descriptive data techniques. This analytical approach involved quantifying the prevalence of various technological instruments implemented by teachers in their instructional practices. The resulting descriptive data provided a comprehensive overview, elucidating the extent to which English teachers embraced diverse technological tools within their pedagogical endeavors. Concurrently, the second research question focused on delineating the barriers influencing the implementation of these technological instruments. A comprehensive exploration was undertaken, considering obstacles emanating from both the technological knowledge of the teachers and the available facilities. To decipher the multifaceted nature of these barriers, a qualitative analytical framework was employed. This involved a methodological sequence encompassing data condensation, display, and drawing conclusions. Through this qualitative lens, the research aimed to uncover the intricate interplay between teachers' technological knowledge, the existing facilities, and the challenges impeding the seamless integration of technological instruments into the English language classroom. The nuanced qualitative analysis was pivotal in unraveling the complexities inherent in the barriers faced by educators, contributing to a more profound understanding of the impediments to effective technological implementation in language education.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

This research yields two pivotal findings that serve as foundational elements for the development of an optimal technological framework intended for the facilitation of English language instruction within the context of Junior High School education in Central Lombok. These findings are derived from an analysis of the most recurrent responses provided by

educators, as well as an exploration of the predominant barriers encountered in the utilization of technological instruments. The amalgamation of these insights is poised to inform the design and implementation of instructional technology tailored to the needs of both teachers and students in this specific educational milieu. The research cohort, comprised of twenty Junior High School teachers, has yielded a comprehensive tableau delineating the responses articulated by these educators in relation to the technological instruments they employed, both during and subsequent to the pandemic. This tabular presentation serves as a cogent representation of the diverse array of technological tools integrated into their pedagogical practices. By scrutinizing these responses, educators and policymakers can glean valuable insights into the prevailing patterns and preferences, thereby facilitating the formulation of targeted strategies for enhancing English language instruction through judicious technological integration.

Te	echnologies Applied by Teachers
Number of teachers	Technologies
10	Google Classroom
5	Google Meet
2	Zoom Meeting
2	Limited offline class

Table 1			
Technologies Applied by Teachers			
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In addressing the multifaceted challenges encountered by educators, it is imperative to delve into the diverse array of issues that have impinged upon their technological acumen, as gleaned from the outcomes of interviews conducted. These challenges can be classified into eight distinct categories, namely: 1) hardware and software predicaments; 2) connectivity issues; 3) financial constraints; 4) concerns surrounding the safeguarding of personal information; 5) deficiencies in technical support; 6) the absence of face-to-face interaction; 7) psychological hurdles; and 8) language barriers. The first category encapsulates challenges associated with the functionality and compatibility of both hardware and software components, posing formidable obstacles to educators seeking to integrate technology into their instructional practices. Connectivity issues, constituting the second category, underscore the impediments posed by unreliable or insufficient network access, hindering seamless engagement with digital tools and resources. Financial constraints, identified as the third category, manifest as a significant hindrance to the acquisition of requisite technological resources and infrastructure for effective teaching. In the fourth category, concerns related to the protection of personal information underscore the necessity for educators to navigate the complexities of data privacy and security in the digital realm.

Technical support, or the lack thereof, represents the fifth category, elucidating the pivotal role of accessible and responsive technical assistance in mitigating challenges encountered during the implementation of technology in educational settings. The sixth category, centered around the absence of face-to-face interaction, underscores the social and pedagogical implications of remote learning environments. Psychological hurdles, constituting the seventh category, shed light on the emotional and cognitive challenges that educators grapple with as they navigate the intricacies of technology integration. Finally, the eighth category underscores language barriers, emphasizing the significance of linguistic proficiency in leveraging technology for instructional purposes. Collectively, these delineated categories encapsulate the myriad challenges faced by educators in their pursuit of technological proficiency and effective integration within the educational landscape.

Discussion

Technological Instruments Applied by Teachers in Their Teaching

As mentioned on the findings, there were four common technological types applied by teachers during the or even post-pandemic. The use of google classroom, google meet, zoom meeting, and limited offline class become very popular technological instruments applied by teachers even after the pandemic. This finding is in line with the previous research (Dhir, et al. 2017) in which they mention that the accessibility of the technological instruments also eases the teachers and students even they have to held teaching and learning processes from the distance. Regarding the participants who can join the Zoom and also the Google Meet for instance, many students can be involved at the same time, reducing the time required. Once prepared material can be rechecked many times. The time saved in creating material can be used by instructors to increase their TK proficiency level (technology proficiency) . It is supported by Bhatia (2011) that e-learning is sans borders and can be reached from anywhere, including remote villages. Students can basically come from any region in the world (Naing, et al, 2015).

The exigencies imposed by the global pandemic compelled a paradigm shift in educational modalities, necessitating the adoption of online learning methodologies for both educators and students. Despite the challenges posed by this transition, it is imperative to recognize the inherent adult learning value embedded within the realm of e-learning or cyber learning. Scholars such as Qureshi et al. (2012) assert that this digital pedagogical approach engenders profound comprehension, augments self-motivation, and aligns with core principles of adult learning. Moreover, the transformative potential of cyber learning is underscored by its capacity to empower students in determining personalized learning methodologies. Al-Shorbaji et al. (2015) contend that this autonomy contributes significantly to fostering independent learning among students engaged in digital educational platforms. The autonomy conferred upon learners in the cyber learning environment facilitates the cultivation of critical thinking skills, adaptability, and self-directed learning, all of which are integral components of the adult learning framework. It means that the compulsory transition to online learning during the pandemic, while presenting challenges, concurrently unveils opportunities for the enhancement of educational processes. The virtues of cyber learning, as elucidated by scholars in the field, substantiate its efficacy in not only addressing the exigencies of the moment but also in cultivating a pedagogical landscape conducive to adult learning principles.

Some Barries Faced by Teachers related to Technological Instruments applied

The discussion of these barriers are closely related to both technological knowledge of teachers and also the facilities provided to support the teaching and learning processes during or even after the pandemic. The barriers are elaborated as follows:

The seamless operation of an e-learning platform hinges significantly upon the effective resolution of hardware and software challenges, constituting integral components of the technical setup. Hardware-related issues, as explicated by Randel (2001), encompass cost considerations, component shortages, and a deficiency in mechanical expertise necessary for its optimal functioning. The cost implications of hardware acquisition, compounded by shortages in essential components and a dearth of technical proficiency among educators, collectively pose formidable barriers to the establishment and maintenance of an efficacious elearning infrastructure. Concomitantly, software-related predicaments contribute to the complexity of the technical setup, necessitating continuous efforts to obtain requisite authorizations (Meyer, 2001).

Furthermore, the imperative to periodically update hardware to align with evolving software requirements becomes paramount to ensure the seamless execution of cyber-based learning. The interdependence between hardware and software intricacies underscores the need for a comprehensive and well-coordinated approach to address technical challenges inherent in

e-learning environments. In addition to technical challenges, connectivity emerges as another pivotal factor influencing the efficacy of e-learning initiatives. As posited by Yeung (2012), the realization of effective e-learning is contingent upon the availability of a robust internet connection. In the realm of teaching and learning, educators confront barriers associated with suboptimal connectivity, where a satisfactory bandwidth becomes imperative for the precise and smooth downloading of educational materials. The entwined nature of hardware-software dynamics and connectivity challenges underscores the multifaceted nature of impediments faced by educators in their endeavors to navigate and optimize e-learning platforms.

The challenges associated with financial considerations represent a formidable obstacle in the context of e-learning platforms, encompassing the expenses incurred in repairing, operating, and maintaining these technological frameworks. The financial burden extends beyond mere upkeep, incorporating the necessity for developing requisite infrastructure and engaging proficient Information Technology (IT) personnel. This confluence of financial challenges engenders a multifaceted dilemma for school management, as elucidated by Dhir et al. (2017), particularly in instances where a reluctance to allocate resources towards financing e-learning or cyber learning programs is evident. The financial exigencies emanating from the need for repairing, operating, and maintaining e-learning platforms are manifestly intricate. Repair costs are incurred in rectifying hardware or software malfunctions, while operational expenses pertain to the day-to-day functioning of the e-learning system.

Additionally, the maintenance costs involve the continuous upkeep of hardware, software updates, and other technological components to ensure sustained functionality. Consequently, these financial considerations impose a strain on institutional resources, demanding a judicious allocation of funds to sustain and optimize e-learning platforms. Beyond the operational aspects, the imperative to establish a robust technological infrastructure and secure the services of IT experts introduces another layer of financial complexity. The recruitment and retention of skilled IT professionals contribute to the overall cost structure, adding to the financial implications of instituting and maintaining e-learning initiatives. School management, as the custodians of financial resources, may grapple with reservations regarding the allocation of funds for e-learning endeavors, reflecting a broader hesitancy toward financing programs that involve technological integration. The intricate interplay of financial challenges thus underscores the pivotal role that economic considerations play in shaping the landscape of e-learning within educational institutions.

The imperative of upholding data confidentiality and security looms prominently as persistent challenges in the implementation of technological frameworks. The burgeoning cyber realm has witnessed a commensurate increase in cyber crimes, thereby amplifying the significance of effectual identity management strategies. As posited by Alves and Uhomoibi (2013), the exigency of managing identities in a manner that is both effective and efficient becomes paramount in the face of escalating cyber threats. In this context, the deployment of contemporary antivirus software and robust operating systems assumes heightened importance as essential safeguards against malicious cyber activities.

In tandem with cybersecurity concerns, the academic landscape is confronted with the imperative of addressing issues related to plagiarism within the technological milieu (Putra et al., 2023). The ubiquity of digital resources and the ease of access to vast repositories of information pose challenges to the preservation of academic integrity. Consequently, it becomes imperative to accord special attention to developing and implementing mechanisms that effectively counteract plagiarism in the realm of technological applications (Akbar & Picard, 2019; Putra et al., 2023). The intersection of data confidentiality, cybersecurity, and plagiarism prevention underscores the complex and multifaceted nature of challenges inherent in the technological domain. Educational institutions, technology developers, and policymakers are compelled to collaboratively devise comprehensive strategies that not only mitigate these

challenges but also proactively fortify the technological infrastructure against emerging threats (Alhharrasi, 2023; Domingues, 2022). The nexus of these concerns necessitates an integrative approach that harmonizes technological advancements with robust ethical and security frameworks to engender a technologically mediated educational environment conducive to academic integrity and learner trust.

Within numerous educational institutions, the effective operation of e-learning programs is often impeded by a conspicuous deficiency in mechanical support, even in instances where the infrastructure is ostensibly robust (Hadley et al., 2010; Yilmaz, 2017). This mechanical support deficit poses a critical challenge as it undermines the seamless functioning of e-learning initiatives. Instructors, integral to the execution of such programs, frequently find themselves inadequately informed about the specific support mechanisms requisite for the optimal implementation of particular e-learning platforms (Alam et al., 2023; Bahari, 2022). The paucity of awareness among instructors regarding the intricacies of requisite support further exacerbates the operational hurdles faced in the educational technology landscape.

Compounding the challenges associated with mechanical support is the imperative for students to possess foundational information technology knowledge and skills for proficient engagement with e-learning platforms. Studies conducted by Dhir et al. (2017) and Klamma et al. (2007) collectively underscore the mandatory nature of information technology proficiency at the student stage to facilitate adept utilization of e-learning resources. These findings elucidate that the effective integration of e-learning into pedagogical practices necessitates a confluence of instructor awareness, mechanical support infrastructure, and student competencies in information technology. As such, addressing these interrelated factors becomes imperative to ensure a conducive and effective e-learning environment within educational institutions. Efforts toward enhancing mechanical support infrastructure and fostering information technology literacy among both instructors and students are integral components of a comprehensive strategy aimed at optimizing e-learning programs.

E-learning confronts a substantial impediment in the form of the absence of direct interaction, which stands out as one of its most formidable challenges (Qureshi et al., 2012). The inherent limitations of e-learning platforms in fostering immediate and personal engagement between instructors and students can compromise the quality of the educational experience. The deficiency in direct interaction is acknowledged as a significant constraint, potentially impacting the efficacy of instructional delivery and inhibiting the nuanced understanding of complex subject matter. Furthermore, the inadequacy of tutor support, particularly in the realm of intricate subjects, is identified as a pronounced weakness in the elearning paradigm (Gerdprasert et al., 2011). The absence of timely and personalized guidance from tutors, especially in disciplines requiring heightened instructional support, poses a notable challenge that can impede the acquisition of comprehensive knowledge and mastery of complex concepts within the e-learning context. Adding to the challenges associated with e-learning, the stress experienced by both educators and learners is exacerbated when clear and comprehensive guidelines are lacking (Childs et al., 2005).

In the absence of adequate guidance, the ambiguity surrounding the e-learning process can contribute to heightened levels of stress, negatively impacting the overall learning experience. The articulation and dissemination of clear guidelines become imperative in mitigating stress and fostering a conducive e-learning environment for both instructors and students. Moreover, the cognitive demands of comprehending intricate learning materials pose an additional hurdle, as elucidated by Harden (2002). The necessity for a solid foundational knowledge base to decipher complex content contributes to less positive student responses and perpetuates prevalent myths about e-learning, engendering potential disillusionment among learners (Szymkowiak & Jeganathan, 2022; Tao, 2008). Addressing these challenges requires a comprehensive approach that addresses the limitations of e-learning platforms in fostering direct interaction, enhances tutor support, provides clear guidelines, and strategically dispels prevalent myths to cultivate a more effective and satisfying e-learning experience for educators and learners alike.

Numerous scholarly inquiries have highlighted language as a formidable barrier in the successful implementation of e-learning initiatives (Jeffries et al., 2003). This linguistic hurdle is particularly pronounced given that, akin to traditional learning paradigms, guidelines and instructional content in e-learning are predominantly conveyed in the English language. This linguistic centrality poses a considerable challenge for students who may not be proficient or comfortable with foreign languages, as underscored in the study conducted by Dhir et al. (2017). The prevalence of English as the primary medium of instruction in e-learning platforms renders accessibility and comprehension contingent upon linguistic proficiency. Consequently, students grappling with a lack of fluency in English may encounter impediments in understanding and navigating the instructional content, thereby hindering the effectiveness of their e-learning experiences. This linguistic barrier necessitates attention and consideration in the design and deployment of e-learning programs to ensure inclusivity and equitable access for a diverse student population. Efforts to address language-related challenges are integral to fostering a more accessible and accommodating e-learning environment that caters to the linguistic diversity of learners.

CONCLUSION

This research deals with two research questions where it constitutes an in-depth examination of the technological instruments employed by teachers in the context of English language instruction, a focus extending from the pandemic era and persisting into the post-pandemic landscape. This also deals with the exploration of the myriad barriers encountered by educators in the implementation of these technological instruments within their teaching practices. The study seeks to elucidate not only the diverse array of technological tools embraced by teachers but also the challenges and impediments that characterize their application. The identification and analysis of both technological instruments and barriers serve a dual purpose in this research. On one hand, the knowledge gleaned from teachers' utilization of technological tools contributes to a nuanced understanding of the current landscape of English language instruction. On the other hand, an exploration of the challenges faced by educators offers valuable insights into the intricacies of integrating technology into pedagogical practices.

Crucially, the findings of this research carry broader implications, extending beyond a mere documentation of technological practices and barriers. The identified technological instruments and barriers stand poised to serve as foundational elements for the development of a Technological Pedagogical Content Knowledge (TPACK) model specific to the field of English language education. This model is envisaged as a strategic framework, tailored to support and enhance online learning of English. By synthesizing the identified technological instruments and barriers within the TPACK framework, the research aims to provide a conceptual scaffold for the design and implementation of effective and contextually relevant online English language instruction. Consequently, the research contributes not only to the empirical understanding of current practices and challenges but also lays the groundwork for informed pedagogical interventions in the dynamic landscape of English language education. The next research is expected to be able to develop proper teaching model or strategies where the findings of this research can be used as the basis for it.

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REFERENCES

- Akbar, A., & Picard, M. (2019). Understanding plagiarism in Indonesia from the lens of plagiarism policy: Lessons for universities. *International Journal for Educational Integrity*, 15(1), 7. <u>https://doi.org/10.1007/s40979-019-0044-2</u>
- Alam, M. J., Ogawa, K., & Islam, S. R. B. (2023). e-Learning as a Doubled-Edge Sword for Academic Achievements of University Students in Developing Countries: Insights from Bangladesh. Sustainability, 15(9), 7282. <u>https://doi.org/10.3390/su15097282</u>
- Al Harrasi, K. T. S. (2023). Developing a needs-based plagiarism management in secondlanguage writing in a higher education institute: Practice-oriented research. *Instructional Science*, 51(6), 1079–1115. <u>https://doi.org/10.1007/s11251-023-09628-6</u>
- Al-Shorbaji N, Atun R, Car J, Majeed A, Wheeler E (eds) (2015). E-learning for undergraduate health professional education a systematic review informing a radical transformation of health workforce development. World Health Organization, Geneva. Available from: http:// whoeducationguidelines.org/ content/elearning-report. Accessed June 05, 2020.
- Alves P, Uhomoibhi J. (2013). Issues of e-learning standards and identity management for mobility and collaboration in higher education.CampusWideInf.Syst.Availablefrom:http://www.emeraldinsight.com/doi/ab s/10.1108/10650741011033053?journalCode=cwis.Accessed June 18, 2016.
- Amankwa, Eric. (2021). Relevance of Cyber Security Education at Pedagogy Levels in Schools. Journal of Information Security, 2021, 12, 233-249
 <u>https://doi.org/10.4236/jis.2021.124013</u>. Analysis Of Hongkong'S Target-Oriented Curriculum Initiative. International Review Of Education; 43(4): 349–366.
- Anderson, A., Barham, N., & Northcote, M. (2013). Using the TPACK framework to unite disciplines in online learning. *Australasian Journal of Educational Technology*, 29(4). <u>https://doi.org/10.14742/ajet.24</u>
- Annamalai, Nagaletchimee 2021. Online Learning during COVID-19 Pandemic. Are Malaysian High School Students Ready?. Pertanika J. Soc. Sci. & Hum. 29 (3): 1571 -1590.
- Bahari, A. (2022). Teacher identity in technology-assisted language learning: Challenges and affordances. *E-Learning and Digital Media*, 19(4), 396–420. <u>https://doi.org/10.1177/20427530221092855</u>
- Bhatia RP (2011). *Features and effectiveness of e-learning tools*. Global J Business Management Inform Tech. Vol. 1, Page 1-7.
- Dhir, S. K.; Verma, D.; Batta, M.; Mishra, D. (2017). *E-Learning in Medical Education in India*. Indian Pediatrics. Volume 54_October 15, 2017.
- Domingues, I. (2022). A holistic approach to higher education plagiarism: Agency and analysis levels. *Higher Education Research & Development*, 41(6), 1869–1884. https://doi.org/10.1080/07294360.2021.1969540
- Gerdprasert S, Pruksacheva T, Panijpan B, Ruenwongsa P. (2011). An Interactive web-based learning unit to facilitate and improve intrapartum nursing care of nursing students. Nurse Educ Today. Vol. 31, Page 531-535.
- Goldsworthy S, Lawrence N, Goodman W. (2006). *The use of personal digital assistants at the point of care in an undergraduate nursing program*. Computer Inform Nurs. Vol. 24, Page: 138-143.

- Hadley J, Kulier R, Zamora J, Coppus SFPJ, Weinbrenner S, Meyerrose B, et al. (2010). Effectiveness of an e-learning course in evidence-based medicine for foundation [internship] training. J R Soc Med. Vol. 13, Page: 288-294.
- Haq, Ziaul , Mohammad . 2020. *E-Learning During the Period of Pandemic (COVID-19) in the Kingdom of Saudi Arabia: An Empirical Study*. American Journal of Educational Research, 2020, Vol. 8, No. 7, 457-464
- Hung, M.-L. (2016). *Teacher readiness for online learning: Scale development and teacher perceptions*. Computers & Education, 94, 120-133.
- Kapici, H. O., & Akcay, H. (2023). Improving student teachers' TPACK self-efficacy through lesson planning practice in the virtual platform. *Educational Studies*, 49(1), 76–98. <u>https://doi.org/10.1080/03055698.2020.1835610</u>
- Kidd, T., & Morris, Jr., L. R. (Eds.). (2017). Handbook of Research on Instructional Systems and Educational Technology: IGI Global. <u>https://doi.org/10.4018/978-1-5225-2399-4</u>
- Kodrat, Denny. 2020. *Mindset Shift in Cyber Pedagogy: A Teacher's Strategy upon Learning from Home*. Jurnal Kajian Peradaban Islam, JKPIs , Pages 27 –32 , Vol. 3, No. 2, 2020.
- Lase, Depitir. 2019. *Education and Industrial Revolution 4.0*. Jurnal Handayani (JH). Vol 10 (1) Juni 2019, hlm 48-62
- Makawawa Cristi Junita , Ali Mustadi , Jewish Van Septriwanto, Falenthino Sampouw , Roeth A.O Najoan. 2021. *Primary school teachers perception of technological pedagogical content knowledge in online learning due to Covid 19*. Jurnal Prima Edukasia, 9(1), 85-95. doi:https://doi.org/10.21831/jpe.v9i1.35245
- Naing C, Wai VN, Durham J, Whittaker MA, Win NN, Aung K, et al. (2015). A systematic review and meta-analysis of medical American Journal of Educational Research 464 students' perspectives on the engagement in research. Medicine (Baltimore). 2015; 94: e1089.
- Nguyen, G. N. H., Bower, M., & Stevenson, M. (2022). The discourse of design: Patterns of TPACK Contribution during pre-service teacher learning design conversations. *Education and Information Technologies*, 27(6), 8235–8264. https://doi.org/10.1007/s10639-022-10932-w
- Parra, J., Raynor, C., Osanloo, A., & Guillaume, R. O. (2019). (Re)Imagining an Undergraduate Integrating Technology with Teaching Course. *TechTrends*, 63(1), 68–78. <u>https://doi.org/10.1007/s11528-018-0362-x</u>
- Prayetno, Muhammad iqbal, Jamaludin, Windawati Pinem, (2022) (a). Using The Technical Teacher Application (Gl 4.0) In The Post Pandemic. Devotion, Journal of Research and Community Service; Volume 3, Number 11 September 2022
- Prayetno, Prayetno, Jamaludin, Jamaludin, & Pinem, Windawati. (2022)(b). Layang Teacher Platform In The Cyber Pedagogy Room. Eduvest-Journal Of Universal Studies, 2(3), 580–587.
- Putra, I. E., Jazilah, N. I., Adishesa, M. S., Al Uyun, D., & Wiratraman, H. P. (2023). Denying the accusation of plagiarism: Power relations at play in dictating plagiarism as academic misconduct. *Higher Education*, 85(5), 979–997. <u>https://doi.org/10.1007/s10734-022-00875-z</u>
- Qureshi IA, Ilyas K, Yasmin R. Whitty M. (2012). *Challenges of implementing e-learning in a Pakistani university*. Knowledge Management E-Learn Int. 2012; 4:310-24.
- Randell D. (2001). *E-learning for continuing education: exploring a new frontier*. Med Lab Obs. 2001; 33:24-8.
- Sarker, F.H.; Islam, M.S.; Islam, M.K. (2019). Use of e-learning at higher educational *institutions in Bangladesh: Opportunities and challenges*. Journal of Applied Research in Higher Education Vol. 11 No. 2, 2019 pp. 210-223.

- Szymkowiak, A., & Jeganathan, K. (2022). Predicting user acceptance of peer-to-peer elearning: An extension of the technology acceptance model. *British Journal of Educational Technology*, 53(6), 1993–2011. <u>https://doi.org/10.1111/bjet.13229</u>
- Tao, Y.-H. (2008). Typology of college student perception on institutional e-learning issues An extension study of a teacher's typology in Taiwan. *Computers & Education*, 50(4), 1495–1508. <u>https://doi.org/10.1016/j.compedu.2007.02.002</u>
- Tseng, J.-J., Chai, C. S., Tan, L., & Park, M. (2022). A critical review of research on technological pedagogical and content knowledge (TPACK) in language teaching. *Computer Assisted Language Learning*, 35(4), 948–971. https://doi.org/10.1080/09588221.2020.1868531
- Yanış, H., & Yürük, N. (2021). Development, validity, and reliability of an educational robotics based technological pedagogical content knowledge self-efficacy scale. *Journal of Research on Technology in Education*, 53(4), 375–403. https://doi.org/10.1080/15391523.2020.1784065
- Yeung JC, Fung K, Wilson TD. (2012). Prospective evaluation of a web-based threedimensional cranial nerve stimulation. J Otolaryngol Head Neck Surg. 2012; 41:426-36.
- Yilmaz, R. (2017). Exploring the role of e-learning readiness on student satisfaction and motivation in flipped classroom. *Computers in Human Behavior*, 70, 251–260. <u>https://doi.org/10.1016/j.chb.2016.12.085</u>
- Yulisman Hendra , Widodo Ari , Riandi, Nurina Cut Intan Evtia. 2019. The Contribution Of Content, Pedagogy, And Technology On The Formation Of Science Teachers' TPACK Ability. Edusains,11 (2), 2019, 173-185
- (<u>The TPACK Framework Explained (With Classroom Examples)</u> | <u>PowerSchool</u>) accessed on October 2023