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TECHNOLOGY INTEGRATION IN ENGLISH LANGUAGE LEARNING BASED ON THE TPACK-SAMR FRAMEWORK AT THREE INDONESIAN UNIVERSITIES

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ABSTRACT

Technology plays a crucial role in various aspects of human life, especially in education, making the integration of technology in English language learning at the university level essential. This study aims to: 1) analyze how lecturers integrate technology; 2) Evaluate the proficiency of English language lecturers in incorporating technology using the TPACK-SAMR framework; 3) investigate the implications of technology integration based on TPACK-SAMR in English Language Teaching (ELT). This research employed mixed method approach which involved six lecturers from three Indonesian universities. Interviews and questionnaires were administered to obtain the data. Furthermore, the data was analyzed both qualitative involving data reduction, data display, and conclusion drawing or verification and statistical analysis using SPSS 25.. . The results show that the six lecturers at the universities have integrated technology into their teaching, including preparation, implementation, and assessment. In terms of integration level based on TPACK-SAMR, the lecturers are well-qualified in the aspects of pedagogy, content, and technology. For SAMR levels, the amount of technology integration in learning has reached the point where substitution and augmentation are widespread practices among lecturers. However, the application of technology at the modification and redefinition levels remains limited. Moreover, technology has the results revealed six noteworthy aspects of implication technology in English classroom, namely enrichment of learning material, enhanced learning, accessibility, a broader range of assessment, provide direct feedback and enhanced productivity and efficacy. therefore, lecturers' TPACK-SAMR competency in the practice of using technology is very important as a basis for the application of technology in higher education in the future.
Key Words: technology integration; English language learning; TPACK-SAMR

ABSTRAK

Teknologi memiliki peran yang penting di hampir seluruh aspek kehidupan manusia, khususnya pada dunia Pendidikan. Mengintegrasikan teknologi dalam pembelajaran Bahasa Inggris, khususnya di Tingkat perguruan tinggi menjadi suatu keharusan. TPACK dan SAMR merupakan kerangka kerja yang digunakan sebagai pedoman untuk integrasi teknologi dalam pengajaran dan evaluasi. Studi ini bertujuan untuk 1) menganalisis cara dosen dalam mengintegrasikan teknologi dalam pembelajaran, 2) Mengkaji tingkat kompetensi dosen bahasa Inggris dalam mengintegrasikan teknologi berdasarkan kerangka TPACK-SAMR, dan (3) Mengkaji implikasi dari penerapan teknologi berdasarkan TPACK-SAMR terhadap praktik pembelajaran bahasa Inggris. Penelitian ini menggunakan pendekatan mixed method yang melibatkan enam dosen yang mengajar di tiga perguruan tinggi di Indonesia. Wawancara dan angket digunakan untuk mengumpulkan data. Analisis data dilakukan dengan qualitatif meliputi reduksi data, penyajian data, dan penarikan kesimpulan atau verifikasi dan analisis statistic menggunakan SPSS 25. Hasil menunjukkan bahwa keenam dosen di universitas tersebut telah mengintegrasikan teknologi ke dalam pengajarannya, termasuk dalam tahap persiapan, pelaksanaan, dan penilaian. Dari segi tingkat integrasi berdasarkan TPACK-SAMR, dosen sudah mumpuni dalam aspek pedagogi, konten, dan teknologi. Untuk tingkat SAMR, besarnya integrasi teknologi dalam pembelajaran telah mencapai titik dimana substitusi dan augmentasi merupakan praktik yang tersebar luas di kalangan dosen. Namun penerapan teknologi pada tingkat modifikasi dan redefinisi masih terbatas. Selain itu, teknologi juga memiliki enam aspek penting dalam implikasi teknologi di kelas bahasa Inggris, yaitu pengayaan materi pembelajaran, peningkatan pembelajaran, aksesibilitas, penilaian yang lebih luas, memberikan umpan balik langsung dan peningkatan produktivitas dan kemanjuran. Selain itu, teknologi mempunyai

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beberapa implikasi dalam pengajaran bahasa Inggris yaitu pengayaan materi pembelajaran, peningkatan pembelajaran, aksesibilitas, penilaian yang lebih luas, mampu memberikan umpan balik langsung dan peningkatan produktivitas dan efektivitasKata Kunci : Integrasi Teknologi, Pembelajaran Bahasa Inggris, TPACK-SAMR
Kata Kunci: *integrasi teknologi, pembelajaran bahasa Inggris, TPACK-SAMR*

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INTRODUCTION

Information and communication technology (ICT) has become an integral part of advancement and development in almost all aspects of life. The role of technology in enhancing human quality, particularly in the era of the Fourth Industrial Revolution (IR4), has become increasingly evident (Mualim & Maulana, 2023). Although this technology was initially aimed at facilitating the business world, educators have begun to realize its potential for teaching and learning purposes, prompting them to invest in its development (Drugova et al., 2021). Educators have started integrating technology into classroom learning, in line with curriculum changes initiated by the government.

Several studies, both conducted in Indonesia and abroad, have highlighted the use of technology in language teaching practices. Research in Indonesia has investigated the potential of AI technology to revolutionize learning processes (Fitria, 2021). Additionally, technology can also improve students' writing skills in English for Specific Purposes (ESP) when they use social media platforms such as Instagram (Nugroho & Mutiaraningrum, 2020). Furthermore, the use of technology has the potential to transform student learning and expand knowledge and English language skills (Alfiana, 2021). Studies abroad have also shown that integrating technology in teaching can enhance the learning experience for both students and teachers, ultimately improving learning outcomes (Ammade et al., 2018). Research has proven that incorporating Web 2.0 technology like Facebook into a blended learning approach enhances collaborative and cooperative learning, providing more opportunities for interaction and effective learning (Shih, 2011).

Technology offers numerous benefits to its users. The use of technology in the classroom can influence how teachers teach and enable them to use it more effectivel.(Abel et al., 2022). Technology makes learning more engaging and interactive. Teachers can explain material by displaying examples using PowerPoint, Prezi, or videos to deliver more appealing presentations. In English language learning, technology plays a significant role in students' language acquisition. Language learning requires educators to practice more frequently to improve their performance in speaking, listening, writing, and reading. In this context, technology provides students with broad access to authentic materials. Students can access real-world contexts where native speakers use the language, including pronunciation, sentence structure, and word usage (Justsinta Sindi Alivi, 2019). Moreover, academics have introduced technology in learning, including TPACK (Technological Pedagogical Content Knowledge), SAMR (Substitution, Augmentation, Modification, Redefinition), RAT (Replacement, Amplification, Transformation), TIM (Technology Integration Matrix), Picsart, and wheels (Muslimin et al., 2023).

Researchers have recognized the TPACK and SAMR frameworks as effective guidelines for integrating technology into teaching and evaluation. Researchers chose these frameworks for several reasons, such as their aesthetic appeal, their suitability for lecturers' teaching needs, their popularity among technology integration researchers, and their widespread adoption for evaluating digital literacy skills (Cherner & Mitchell, 2021). Additionally, educators can assess their competencies in integrating ICT in the classroom using these two models, TPACK and SAMR.(Backfisch et al., 2021).
TPACK (Technological, Pedagogical, and Content Knowledge) is a framework of knowledge that integrates three main aspects of the teaching process, namely technological knowledge, pedagogical knowledge, and content knowledge. The framework originally consisted of two components: pedagogical knowledge (PK) and content knowledge (CK). PK refers to teachers' skills in teaching and understanding of learning concepts and theories, while CK emphasizes the understanding and mastery of subject matter relevant to the discipline being taught (Sindi Alivi, 2019). Then Mishra & Koehler (2006) modified to the PCK framework were made by adding a new dimension called

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technological knowledge (TK), forming the TPACK Framework (Technological, Pedagogical, and Content Knowledge).

The SAMR framework evaluates the level of technology integration in education by classifying it into four categories: Substitution, Augmentation, Modification, and Redefinition. The paradigm depicts four stages of integration, spanning from the replacement of manual tools to the complete transformation of the learning process. In 2013, Puentedura classified the Substitution and Augmentation levels as Enhancement, and the Modification and Redefinition levels as Transformation (Sindi Alivi, 2019).

Previous research has discussed a variety of aspects of technology integration in learning. The TPACK-SAMR framework, technostress, and teaching performance among English lecturers were the focus of the first study on digital literacy competencies. This study aimed to examine the correlation between English lecturers' digital literacy skills with the TPACK-SAMR framework and technostress. The results showed that most participants were confident in their pedagogical and content knowledge but struggled to integrate technology into learning (Muslimin et al., 2023). Second, a study was conducted using a literature review method that adopted the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) model to investigate the suitability of the SAMR model for e-learning. The results showed that the SAMR model is a conceptual framework that helps educators determine the type of technology utilization and integrate it effectively into learning. However, the SAMR model requires improvement in three key areas: 1) Context: To be more relevant and effective, the SAMR model needs to consider the context of technology use; 2) Structure: The model has a rigid structure, so it needs flexibility in adapting technology; 3) Focus: Beyond just products, the SAMR model should also consider the learning(Alfiana, 2021). Third, conduct research on factors platform and provide recommendations for its successful integration. Using TPACK, the researchers evaluated changes in teachers' knowledge of technology, pedagogy, and content. The SAMR model helped reflect current platform usage, involving technology integration at the substitution, augmentation, and modification levels (Drugova et al., 2021). Fourth, the TPACK-SAMR framework guided research on the potential and difficulties of ICT integration in classroom education. A case study involved 206 tutors and teachers in training. The results showed that most respondents had low ICT pedagogical competencies. However, the tutors demonstrated excellent knowledge levels in all aspects of TPACK and SAMR (Kihoza et al., 2016). The fifth study focused on integrating technology through the SAMR model. The results showed that the highest percentage of ICT integration was at the augmentation and modification levels. However, the socio-cultural context implications should be considered (Bicalho et al., 2023).

These studies discussed the importance of digital literacy to minimize technostress, improvements to the SAMR model for e-learning, and the opportunities and challenges of using ICT based on TPACK-SAMR. No research has detailed how to use the technology and its implications. The current research focuses on analyzing the types of technology used by lecturers in learning, how to integrate it based on the TPACK-SAMR framework, and its implications for learning.

The government has long been preparing Indonesian education to face the IR4 era by emphasizing 21st-century learning methods. The government also mandates educators to use ICT in teaching through the 2013 Curriculum and the Merdeka Curriculum. The goal of this effort is to enhance students' learning quality and equip them for the digital era and global communication (Al Yakin et al., 2023). With these policies, educators have begun utilizing technology for their teaching activities.

However, the distribution of technology in Indonesia is uneven, especially between densely populated areas and more remote areas. Individuals in more densely populated areas have better access to higher education and technology than those in more remote areas. Despite the increase in digital technology utilization in Indonesia, the issue of the digital divide persists, especially in remote areas (Kurnia et al., 2019). The government has made several efforts to address this gap, including the implementation of e-government and technology utilization models, which are now integral to efforts to improve public services and education in remote area (Ummah et al., 2022). Therefore, further research on the use of technology in learning in various regions of Indonesia is essential.

The scope of this research encompasses three main aspects. First, this research identifies and analyzes various types of technology used by lecturers in English language teaching, covering the

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preparation, implementation, and evaluation stages. Second, this research examines lecturers' knowledge of technology use, pedagogical knowledge, content knowledge (subject matter), and their ability to integrate technology, pedagogy, and content in learning. Additionally, this research measures how lecturers use technology based on the SAMR model. Third, it assesses the effectiveness and efficiency of technology use in learning. This research explores the impact of technology integration in learning, including improving teaching quality, providing material resources, and cost aspects.

This research aims to enhance the understanding of technology integration by lecturers in various regions of Indonesia, thereby assisting policymakers in curriculum development, particularly in higher education. Furthermore, this research is expected to contribute to the academic literature on technology integration in higher education learning.

METHODS

Research design

This research employed a mixed-methods methodology, incorporating the collection of both quantitative and qualitative data (Morse, 2016). The quantitative was to determine the level of proficiency of English lecturers in TPACK-SAMR framework-based technology integration. Furthermore, the qualitative was to understand how lecturers use technology in their classes and what effects doing so has on the TPACK-SAMR framework for English language instruction. Two data types were employed to obtain valid and reliable conclusions and ensure trustworthiness(Nha, 2021).

Research site and participants

The study was carried out in three universities located in different regions of Indonesia (Western, Central, and Eastern) to consider the variety of educational settings. The research was conducted from June to December 2023. The informants consisted of six English language lecturers who were affiliated with universities that provided an English Language Education Study Program. with a minimum "Good" (B) accreditation.

Data collection and analysis

The data collection sequance was devided into two phases, the quantitative online survey and the qualitative online interview. The online survey was done in Google Forms, and the Link was shared through WhatssApp. The periode of survey was from June to Desember 2023. After the questionnaire distribution, the data were downloaded as an Excel file and processed in SPSS 25. Descriptive statistics on SPSS were employed in the form of percentages. The TPACK questionnaires were adopted from Schmidt, Baran, Thompson, Mishra, Kohler and Shin, 2009, while the SAMR questionnaires were adopted from Biruve, Kajura, Mugisha and Jude, 2014.

The component of the questionnaire that addressed TPACK was categorized into four dimensions: technological competence (consisting of 7 statements), content knowledge specifically on literacy (3 statement), language learning (comprising 3 statements), pedagogical knowledge (including 7 statements), and technological pedagogical content knowledge (encompassing 6 statements).

In addition, the questionnaire also contained sections related to the SAMR model, which consists of four levels: Substitution, Augmentation, Modification, and Redefinition. Each level has a specific number of statements: Substitution (13 statements), Augmentation (15 statements), Modification (9 statements), and Redefinition (16 statements). Following the Miles and Huberman approach, the qualitative data was evaluated through a series of processes that included data reduction, data display, and conclusion drawing (Esubalew Aman Mezmir, 202, 202.).

The validity of the findings was ensured through the process of member checking, where the research results were returned to the original participants for their verification and feedback. This method allowed participants to confirm the accuracy of the interpretations and provide additional insights or corrections, thereby enhancing the credibility of the study. Member checking was employed to validate the authenticity and accuracy of the data analysis. By involving participants in the review of the findings, researchers could confirm that the interpretations and conclusions drawn were reflective of the participants' experiences and viewpoints. This collaborative approach helped to

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identify any discrepancies or misunderstandings, thus refining and strengthening the validity of the research.

FINDINGS AND DISCUSSION

Findings

Technology integration in English Language Teaching (ELT)

Lecturers at the three researched universities have successfully integrated various technologies into English language teaching, with the integration process divided into three main stages: lesson preparation, lesson implementation, and lesson evaluation. At University 1, lecturers utilize a variety of technologies, ranging from hardware to software and online learning platforms. They access various online resources, such as academic journals, websites with related topics, and e-learning platforms, to prepare teaching materials. During teaching, lecturers Use a Smart TV or Projector to Present Course Materials. Additionally, PowerPoint Presentation (PPT), a program that features a visual project, was utilized. To ensure that the lecturer only covers crucial issues, the material covered in class has been sent in e learning beforehand and then a class discussion was carried out. At the assessment stage, there were many websites that offer testing programs used in the evaluation learning phase. Kahoot and quizzes were used by lectures to manage formative assessments in grammar courses. Conversely, lecturers in speaking class were more interested in using the "Socrative" or Padlet "platform. To accomplish the final project, students created podcasts and videos that were uploaded on YouTube or e-learning to complete project-based tasks.

At University 2, lecturers utilized technologies such as Google for information sources, Canva and PowerPoint for instructional media, as well as the Learning Management System (LMS) and the campus Student Academic Information System (SIAKAD) for asynchronous learning. They uploaded materials to the LMS for student accessibility and used discussion features to deepen understanding of the content. In assessments, lecturers made use of the LMS and Quizzes for online tests and assign final tasks such as video creation, which were shared through social media.

Meanwhile, at University 3, lecturers rely more on teaching modules provided by the university and utilize platforms like "*Learningku"* and "*Learningmu"* for asynchronous learning. Videos were used in teaching as discussion materials, both created by the lecturers themselves and sourced from other references. In assessments, lecturers made use of technologies such as Quizzes, Kahoot, and Telegram for tests and assignment distribution, as well as assigning project tasks such as creating introduction videos.

Based on the presented data, it could be concluded that lecturers at the three universities have integrated technology into learning using various technologies and methods that vary. In the preparation stage, they created materials not only based on printed books but also enriched them by accessing credible websites and reputable journals. Lecturers utilized applications, software, and hardware to support learning, such as laptops, PowerPoint presentations, or e-learning platforms, in the implementation stage. In the assessment stage, lecturers no longer used conventional methods like paper-and-pencil tests but tend to use applications so that students could conduct evaluations anywhere and receive immediate feedback.

Table 1 Questionnaire responses regarding the TPACK framework

TPACK framework	Strongly Disagree	Disagree	Agree	Strongly Agree
Technological Knowledge	0%	11.9%	59.25%	28.57%
Pedagogical Knowledge	0%	0%	38.10%	61.90%
Content Knowledge	0%	0%	66.67%	33.33%
Technology, Pedagogy, and Content integration	0%	0%	66.67%	33.33%

Table 1 displayed the questionnaire responses from six lecturers at three universities in

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Indonesia regarding their technological knowledge, pedagogical knowledge, and content knowledge, as well as their ability to integrate technology, pedagogy, and content in teaching. Only 11.9% of respondents indicated disagreement with statements in the questionnaire regarding technological knowledge. The data indicated that most participants have a comprehensive comprehension of the application of technology in the field of education.

Furthermore, based on interviews, most lecturers attested to their ability to leverage technology to enhance their courses and raise student performance. Lecturers also demonstrated a high level of proficiency in implementing pedagogically sound tactics that integrate technology, material, and content. As lecturer at university 1 stated that "I am able to utilize technology in a way that aligns with the instructional strategies and resources I will elucidate." This result demonstrated lecturers' awareness of how to use technology to enhance learning opportunities and foster a deeper comprehension of the material.

Table 2 Questionnaire responses regarding the SAMR framework

SAMR Framework	Never Applied	Applied
Substitution	16.67%	83.33%
Augmentation	17.78%	82.22%
Modification	42.59%	57.4%
Redefinition	50%	50%

Table 2 displays the questionnaire responses from respondents regarding their ability to integrate technology that meets the SAMR criteria. From the table, it can be seen that 83.33% of lecturers have used technology at the substitution stage. 82.22% are at the augmentation stage, 57.4% at the modification stage, and the stage with the lowest percentage is redefinition, at 50%. It was concluded that the amount of technology integration in learning has reached the point where substitution and augmentation are widespread practices among lecturers. However, the application of technology at the modification and redefinition levels remains limited. This implies that technology is frequently utilized to augment current learning activities rather than basically altering them.

Furthermore, on the findings of interviews with respondents about the use of technology at the level of modification and redefinition, the researcher concluded that: (1) there is still a lack of mastery of technology, implying that, while the campus has provided adequate learning facilities, they are not yet adequate. (2) lecturers lack time to use technology effectively. Therefore, lecturers' awareness in understanding the importance of technology in learning is very necessary in order to make thorough preparations.

It should be clarified that the degree of competence of lecturers in integrating technology is not low or inadequate. The use of technology, according to the hierarchical ladder of the SAMR model, is not intended to reach the highest level of redefinition, but rather to meet the established learning objectives (Alfiana, 2021). Finally, the results of this research indicate that the implementation of technology based on the TPACK-SAMR framework in English language learning has had positive implications for learning outcomes.

Implications of technology integration in English Language Teaching based on TPACK-SAMR framework

Utilizing technology in English language teaching improves the efficacy and efficiency of learning. This technology empowers educators to choose technology that aligns with their instructional requirements, enhances students' learning outcomes, and fosters improved engagement and communication between educators and students.

The implication of technological integration based on TPACK-SAMR in English learning can be inferred from the findings of interviews with six instructors at three universities.

1. Enrichment of Learning Materials

   TPACK-SAMR made a major contribution to the use of technology in the classroom. Lecturers

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can create engaging learning experiences by incorporating technology in order for educational activities to function well. This efficacy stems from the fact that technology can improve student learning. Students can obtain authentic and higher-quality materials.

2. Enhanced Learning

Before teaching in class, lecturers at universities 1 and 3 upload content to the e-learning platform or LMS, allowing students to prepare themselves. This allows time for learning so that students can contribute to class discussions, share their perspectives, and gain a deeper comprehension of the material. In this instance, technology can help solve the issue of boredom or learning boredom by making the class more engaging and enjoyable. Using dynamic and visually appealing multimedia to communicate information, such PPT, Canva, and YouTube, can add interest to learning.

3. Accessibility

Technology allows students to have more flexible access to material, which helps them study more effectively. Online learning platforms, such as e-learning, allow students to learn whenever it is most convenient for them.

4. A broader range of assessments

The interview results revealed that lecturers used Quizzes, Kahoot, Telegram, Socrative, and Padlet for assessment. Additionally, there are a number of advantages to using social media for English language learning through group video projects. For example, students' engagement can rise as a result of the chance to express creativity and work together on these projects. Similar to speaking classes, group discussions are held by students, who film them and post them to social media.

5. Provide direct feedback.

The process of evaluating students can be made easier by technology. The e-learning platform allows teachers to administer exams virtually. This makes it possible for quick and automatic evaluation, with findings that students may view right away. Regular formative assessments are made possible by technology thanks to online resources that support student progress tracking and feedback provision for the duration of the semester.

6. Enhanced productivity and efficiency

Assessing the implementation of technology in learning yields considerable gains in terms of efficiency, particularly by diminishing or eliminating the need for paper in learning activities. Technology also increases learning efficiency.

Discussion

The discussion of this study would be presented following the orders of the findings namely technology integration in English language teaching (ELT), technology integration in English language teaching based on the TPACK framework, technology integration in English language teaching based on the SAMR framework and implications of technology integration in English language teaching based on TPACK-SAMR framework.

Technology integration in English Language Teaching (ELT)

Hardware, software, and applications are used by lecturers to enhance learning. Utilizing technology well can result in a variety of learning opportunities. The development of technology and learning methods, as well as the application of technology, is critical for student growth. This is consistent with Suherdi's (2015) finding that English language teacher must use ICT in order to keep up with the social and cultural shifts that are occurring in society today (Siregar et al., 2024). Therefore, in order to develop more modern and effective teaching methods and learning styles, educators and English language learners should incorporate ICT and research its many functions (Muslimin et al., 2023).

Lecturers also increasingly use applications during the assessment phase rather than the traditional paper-pencil tests, which allow students to complete assessments anywhere and receive feedback right away. Technology is used by to enhance the evaluation and feedback procedure (Deeley, 2018). Aside from that, Albinson et al., (2020) claimed that (1) technology could support and enhance formative and summative evaluations. One such example is computer-based assessment and feedback, which uses software to automatically grade work and provide feedback without the need

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for human intervention. lengthy ones, which are perfect for formative assignments; (2) online assessments can be used to examine student comprehension rapidly and promote participation in the classroom.

Technology integration in English Language Teaching based on the TPACK framework

TPACK as a knowledge framework that integrates technological knowledge, pedagogical knowledge, and content knowledge. This framework can help educators understand and determine the most appropriate technology for addressing subject matter (Shafie et al., 2019).

Technological competency is the first skill in TPACK and is very helpful in raising the standard of education in the twenty-first century. Based on the finding, every all lecturers have successfully incorporated technology into their lessons. They apply it to every stage of instruction, including planning, carrying out, and evaluating. They are adept at using technology to create meaningful teaching.

Teachers' ought to be adept at utilizing technology in order to guarantee that students' education keeps pace with Industry 4.0 advancements. Teachers need to be skilled at integrating technology into the classroom in order to make learning fun for the students (Yurinda & Widyasari, 2022).

In addition, teachers have strong pedagogical knowledge. Lecturers are able to organize in such a way as to create effective classes. It is consistent with the Santos & Castro (2021) research that teachers possessing strong pedagogical competence can oversee student learning by fusing appropriate teaching strategies with efficient classroom management.

In the context of studying English, content knowledge consists of (1) linguistic abilities like vocabulary use, etc. (2) elements of language, including phonology, phonetics, pronunciation, etc. (3) Cultural awareness, including the distinctions and overlaps between English as a foreign language and first language (Keengwe & Kang, 2012; Aniq & Drajati, 2019) .

Therefore, a person possessing strong technological competence in education would not only possess technical ICT abilities but also understand the ways in which technology, content, and pedagogical skills interact (Sindi Alivi, 2019).The following traits characterize teachers with high TPACK: (1) they are adept at teaching content in a variety of contexts; (2) they are capable of managing the classroom; (3) they are proficient in learning the material; (4) they administer formative and summative assessments; (5) they deliver the content through specific applications; (6) they invite students to comprehend the content through specific technologies; and (7) they are able to assess student work through specific technologies (Koehler, 2006; Mualim & Maulana, 2023).

Technology integration in English Language Teaching based on the SAMR framework

SAMR (Substitution, augumentation, modification and redefinition) which was initiated by Puentedura is widely used in scientific publications to describe and categorize technology integration in education (Blundell et al., 2022). The results of this study lead to the conclusion that there is a high level of integration during the stages of substitution and augmentation. The present outcome is consistent with the research conducted by Al-Khalidi (2021); Boonmoh & Kulavichian (2023); and Lyddon (2019) which indicates that the majority of educators incorporate technology at the Enhancement level, which involves substituting traditional methods with technology and enhancing task functionality through the use of technology.

At the transformation stage, which consists of modification and redefinition, it is still used to a limited extent. A modification would be a change in the teacher's approach to the assigned work (Bicalho et al., 2023). At this stage, technology is starting to alter how things are accomplished, and learning has changed along with it. At this level, for instance, technology is used so that peers and students can collaborate to complete tasks and provide or receive feedback (Puentedura, 2014). In the meantime, technology allows for the creation of learning activities that were previously unattainable during the redefinition stage. Potential reasons include the inclination not to use technology at this point because of a lack of resources, including time and facilities, and the degree of teacher comprehension of the technology's capabilities.

The use of technology is also influenced by the policies of each campus, such as in conducting

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discussions. Lecturers at University 1 often discuss using LMS due to an assessment by the Quality Assurance Institute (LPM) regarding the effectiveness of using LMS in learning. Thus, educators are inspired to utilize it to its fullest potential. This is in line with the findings of (Boonmoh & Kulavichian, 2023), who claimed that one of the most crucial elements in inspiring lecturers is the encouragement to use technology to learn from superiors.

Technology integration in learning plays an important role in making learning interesting, effective and efficient (Cha et al., 2020). The aim of using new technology in the classroom must always be to support effective educational improvement as the highest priority (Joseph, 2021; Kihoza et al., 2016).

Implications of technology integration in English Language Teaching based on TPACK-SAMR framework. Regarding the last research issue, the results revealed six noteworthy aspects of implication technology in English classroom, namely enrichment of learning material, enhanced learning, accessibility, a broader range of assessment, provide direct feedback and enhanced productivity and efficacy.

Basically, the use technology in classroom activity can increase the effectiveness and efficiency of learning. Integrating ICT into teaching methods has been proven to be effective in stimulating students' motivation and maintaining their focus for long periods of time and increasing students' understanding of lesson material (Mahdum et al., 2019).

Additionally, technology can facilitate students' access to content easily. This is consistent with the viewpoint of Kumar et al., (2022) who state that using hardware and software for English language learning can benefit teachers and students in a number of ways, including cost savings, the capacity to learn quickly, and the availability of material at any time. According toTaopan et al., (2020), integrating technology into TPACK offers a variety of benefits, such as engaging and adaptable learning environments, inspiring educators and learners to grow, and the chance to create multimodal products.

It is also mentioned in the research that technology might make assessment tasks easier. Technology-based assessment tasks fall within the category of SAMR (Blundell et al., 2022). SAMR—particularly the modification stage—offers a depiction of technology use that is helpful in repurposing conventional jobs as tactics-based technology (Nair & Chuan, 2021).

This digital technology-based assessment task provides effective use of your time and stationery. Lecturers and students can save money on printing, storing, and handling physical paper by using the platform instead of consuming as much paper and stationery (Blundell et al., 2022). Aside from that, these findings are consistent with study by (Deeley, 2018), which indicates that technology can be a great help in giving students feedback that is both more private and of a higher caliber. Technology can give students quick feedback, which they can utilize as a guide to enhance their subsequent learning (Haleem et al., 2022).

CONCLUSIONS AND SUGGESTION

The research findings provide three clear conclusions. First, all lecturers at the three universities have integrated technology into English language teaching. Lecturers have maximized the use of apps, software, and hardware at every step of the process, including preparation, implementation, and evaluation. Second, lecturers at these three universities possess adequate pedagogical, content, and technological skills. Third, the implications of technology integration in English language teaching have the result of improving the efficacy and efficiency of learning processes.

There are certain limitations that influence to its finding. The researchers were unable to perform in-depth observations and interview due to the great distance, specifically in eastern, western, and central Indonesia. Moreover, this study was also conducted in limited subject. It is therefore envisaged that further study would enhance data collecting in order to yield comprehensive and insightful results and incorporate larger research subject. Additionally, future researches can look into factors that may affect lecturers TPACK-SAMR competence to incorporate technology into education.

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