

English Teachers' Technology Integration in Classroom Through the SAMR Model

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ABSTRACT

As technology continues to evolve and become increasingly prevalent in English language classrooms, teachers must integrate it systematically to ensure that it effectively enhances students' learning experiences. Currently, the use of digital media in English language teaching remains inconsistent, with technology often functioning only as a replacement for conventional tools. This study investigated the types of digital media used by English teachers at SMAN 7 Medan and analyzed the extent to which technology integration reflects the SAMR model (Substitution, Augmentation, Modification, and Redefinition). Using a qualitative approach, data were collected through structured interviews and analyzed thematically. The findings showed that teachers commonly used PowerPoint, projectors, educational videos, TikTok, and voice recordings in their instruction. Most practices remained at the Substitution and Augmentation levels, while only limited activities reached the Modification level through more interactive and creative learning tasks. The Redefinition level was minimally achieved. These findings indicate that technology integration in English language teaching is still in a transitional stage and highlight the importance of continuous professional development to support more innovative and transformative teaching practices.

Keywords: Digital Media, English Language Teaching, SAMR Model, Technology Integration

ABSTRAK

Seiring dengan pesatnya perkembangan teknologi dan semakin meluasnya penerapannya dalam pembelajaran bahasa Inggris, para pendidik dituntut untuk mengintegrasikan teknologi secara sistematis dan terencana demi mengoptimalkan pengalaman belajar peserta didik. Pada kenyataannya, pemanfaatan media digital dalam pengajaran bahasa Inggris masih berlangsung secara tidak merata, di mana teknologi acap kali hanya berperan sebagai substitusi terhadap perangkat pembelajaran konvensional tanpa memberikan nilai tambah yang signifikan. Penelitian ini bertujuan untuk mengidentifikasi jenis-jenis media digital yang dimanfaatkan oleh guru bahasa Inggris di SMAN 7 Medan sekaligus menganalisis

sejauh mana integrasi teknologi yang diterapkan mencerminkan kerangka model SAMR (*Substitution, Augmentation, Modification, dan Redefinition*). Penelitian ini menggunakan pendekatan kualitatif dengan pengumpulan data melalui wawancara terstruktur yang selanjutnya dianalisis menggunakan teknik analisis tematik. Hasil penelitian mengungkapkan bahwa media digital yang lazim digunakan meliputi PowerPoint, proyektor, video edukatif, TikTok, serta rekaman suara. Mayoritas praktik pembelajaran yang teramati masih bertahan pada tahap Substitusi dan Augmentasi, sedangkan sebagian kecil aktivitas telah mencapai tahap Modifikasi melalui penerapan tugas-tugas pembelajaran yang lebih interaktif dan kreatif. Adapun pencapaian pada tahap Redefinisi masih sangat terbatas. Temuan-temuan tersebut mengindikasikan bahwa integrasi teknologi dalam pembelajaran bahasa Inggris di sekolah tersebut masih berada pada fase transisi, sehingga menegaskan urgensi pengembangan profesionalisme guru secara berkesinambungan sebagai upaya mendorong terwujudnya praktik pembelajaran yang lebih inovatif dan transformatif.

Kata Kunci: Media Digital, Pengajaran Bahasa Inggris, Model SAMR, Integrasi Teknologi

A. Introduction

In today's digital era, the integration of technology into educational practices has become an essential element, especially in the instruction of English as a second language. Technology has progressed beyond just being a simple teaching tool, becoming a crucial channel for expressing knowledge in a visual, engaging, and contextualized format. Modern English instructors have access to an extensive array of digital resources, which include devices like projectors, laptops, and tablets, alongside software and applications such as Google Classroom, Duolingo, Canva, and

Kahoot, all of which can significantly improve both teaching and learning experiences. The use of these digital tools presents considerable opportunities for aiding students in enhancing their understanding of English language content, particularly in areas like speaking, listening, reading, and writing skills.

However, the success of digital tools in an educational setting heavily relies on how educators choose, oversee, and apply these technologies in their teaching methods. While numerous teachers have initiated the integration of technology into their educational approaches, there is still a gap in their comprehension of the teaching

functions and capabilities that these tools possess. In reality, many instructors leverage technology merely to replicate traditional media like such as using PowerPoint presentations that only show text and without considering the interactive and engaging components that technology can provide. Although some educators have begun to explore interactive applications, they often do not fully grasp how to use these resources to create impactful learning experiences.

This situation illustrates that the implementation of digital tools in education is still uneven and has not fully realized its capabilities. Initial results from a structured review of literature indicate that although technology holds promise for improving teaching techniques, a large number of educators remain at the substitution level that merely swapping out conventional methods for technology without making vital educational changes (Krisbiantoro & Ashari, 2024). This presents an increasing challenge, as teachers exhibit insufficient readiness to adapt to new teaching and learning dynamics (Alfiana,

2021), and there is a lack of a strong theoretical framework to assess the extent to which technology effectively enhances the representation of knowledge. Within this backdrop, a research void exists in examining the specific forms of digital media utilized by English teachers in their classrooms and in identifying how their use can be systematically understood through the application of a suitable framework.

One suitable theoretical structure for assessing the level of technological integration is the SAMR model proposed by Ruben Puentedura. The SAMR model (Puentedura, 2014) stands for Substitution, Augmentation, Modification, and Redefinition. This framework classifies the use of technology into four incremental categories, which span from simple replacements of traditional tools to the development of learning experiences that only technology can facilitate. By utilizing this model, researchers can uncover not just the kinds of media employed by educators, but also analyze how these technologies are applied, whether they are utilized merely as assisting tools or as

instruments that revolutionize the learning experience.

The SAMR framework is illustrated as a four-level ladder that is divided into two main categories, enhancement and transformation. The enhancement category consists of the first two stages: substitution and augmentation. In the substitution phase, technology merely replaces conventional tools without altering their function; for instance, using a laptop in lieu of a notebook or substituting an interactive whiteboard for a traditional chalkboard. During the augmentation phase, technology continues to serve as a replacement but offers functional enhancements. An example is utilizing Google Docs, which facilitates real-time collaboration and commenting within a shared document.

The subsequent category is transformation, which encompasses modification and redefinition. At the modification stage, technology fosters a substantial redesign of learning activities. For example, students can work together from different classrooms and locations to

complete intricate digital projects. At the redefinition phase, technology unlocks opportunities for new kinds of tasks that were previously unattainable, such as making educational vlogs for an international audience or creating interactive simulations with the help of AI. These stages indicate a radical change in teaching methodologies and learning results.

Numerous research studies have validated the SAMR framework as a reflective and evaluative resource for educators aiming to integrate technology effectively. The organized nature of the SAMR model offers teachers a crucial tool for assessing and improving technology integration, with findings indicating that mobile devices, in particular, can instigate deeper transformations in educational practices (Zamri & Mohamad, 2025). A comprehensive review of 230 scholarly articles from 2009 to 2021 revealed that the SAMR model is commonly employed to outline and classify the incorporation of digital technologies in educational settings, with its classifications based on the evolving behaviors

and roles of teachers and learners (Blundell et al., 2022). Additionally, a study investigating the use of the SAMR model by English instructors in junior high school literature classes discovered that the framework has considerable potential to alter classroom practices; however, challenges such as insufficient resources and time limitations must be resolved for educators to progress to higher integration levels (De Castro & Guia, 2025).

Consequently, the SAMR framework serves as a robust theoretical base for assessing and crafting the application of technology, particularly in the realm of education. By comprehending each level of the model, educators can make better-informed choices when selecting and utilizing technology, ensuring it not only enhances learning but also transforms the representation and experience of knowledge in impactful ways. This research aims to explore the kinds of digital tools utilized by English language educators, including both hardware and software, and to evaluate how effectively and innovatively these

technologies support effective teaching and learning methodologies based on the SAMR model.

B. Methods

This research adopted a qualitative methodology with a structured interview format based on the SAMR framework, which was initially proposed by Ruben Puentedura in the years 2010, 2012, and 2014. The SAMR framework, consisting of Substitution, Augmentation, Modification, and Redefinition, was created to assist educators in evaluating and planning the integration of technology into educational activities. In this research, the framework acted as a basis for investigating how technology aids in the presentation of knowledge within the classroom environment.

The study took place at SMAN 7 Medan and involved two educators as participants. These participants were chosen due to their expertise and frequent integration of technology in their teaching practices. Their insights were deemed important for understanding how digital tools can improve the presentation of learning

materials, thereby enhancing student comprehension.

Data was gathered using structured interviews that included 16 questions, all crafted in line with the SAMR model. The inquiries probed how instructors implement various technological resources like images, videos, animations, and interactive programs. It to enrich lessons and make them easier to understand. Each interview was recorded via a mobile device, with the consent of the participants, ensuring their responses were accurately captured.

Subsequently, the recorded interviews were transcribed and analyzed thematically. The focus of the analysis was to recognize how each educator's use of technology corresponded with the four tiers of the SAMR framework, especially concerning knowledge presentation. This process involved examining how digital tools were utilized to alter conventional teaching methods and improve students' understanding of concepts. Given that the SAMR framework is a recognized approach, only significant adjustments were made, such as placing an emphasis on knowledge representation as detailed in this research, ensuring that

other researchers can replicate the study.

C.Findings and Discussion

Types of Digital Media Used by Teachers

Based on interview data, the two participating teachers employed a range of digital tools in their English teaching practice. The types of technology used are provided in Table 1 below.

Table 1. Types of technology utilized in English instructions		
Technology	Teacher 1	Teacher 2
Devices	Cell phones, laptops, projectors	Cell phones, laptops
Learning Platform	TikTok	PowerPoint, Zoom
Learning Applications	TikTok (for lip sync, songs), automatic quizzes, online games	PowerPoint, voice recorder, blog platforms
Learning Media	PPT, TikTok videos, animations, songs, audio, multimedia visuals	PPT, phone voice recordings
Social Networking Sites	TikTok	-
Others	Internet (for educational entertainment, materials, games, etc.)	Internet

Teacher 1, who has been in the teaching profession for nearly three years, showcased a notably varied and energetic application of digital technology. She integrates traditional tools like projectors and PowerPoint presentations alongside social media applications especially TikTok application as a means of engaging instructional material. She mentioned that she modified educational resources, games, and icebreakers from TikTok to enhance enjoyment and reduce the rigidity of English

learning. Moreover, she utilized automated quizzes and various multimedia elements such as audio recordings, animations, and videos to diversify her lesson presentations. Importantly, Teacher 1 indicated that she employed TikTok's lipsync feature to assist students in practicing pronunciation, a technique she had examined during her postgraduate research.

Teacher 2, who brings over 30 years of experience, displayed a more restrained yet pragmatic approach to technology use. Her primary tools include PowerPoint for presenting materials, mobile phone voice recordings for audio instruction, and Zoom, which she started using for remote teaching during the COVID-19 pandemic. Additionally, she encouraged her students to write on a blog as part of a digital literacy exercise. However, she recognized that her skills with technology are somewhat limited, and she seldom engages in more advanced tasks such as creating videos or conducting collaborative online projects. Despite these limitations, she showed a strong desire for continuous learning and adapting to new technological trends.

These differing profiles illustrate how factors like age, teaching background, and digital literacy levels significantly influence the technologies that educators select and feel comfortable utilizing. As noted by Zhai et al. (2019) and Zhang et al. (2020), educators who do not receive adequate training and lack pedagogical knowledge regarding technology typically remain at the lower tiers of technological integration.

Integration of Technology into English Instructions

Analysis using the SAMR framework showed that most technology integration practices were concentrated at the Substitution and Augmentation levels, while only limited evidence of Modification and Redefinition was identified. Table 2 below maps the classroom activities to the corresponding SAMR levels.

Table 2. SAMR-based mapping of digital media use in EFL classroom activities

Class Activities	Substitution	Augmentation	Modification	Redefinition
Presentation	Projector/PPT (replaces blackboard)	PPT with animations and video (T1), PowerPoint (T2)	TikTok videos, games from social media (T1)	TikTok content creation, lipsync for pronunciation (T1)
Speaking	Cell phone audio recorder (T2)	-	Student-created content from TikTok (T1)	Lipsync with pronunciation practice via TikTok (T1)
Listening	Songs and videos played (T1)	Audio-visual multimedia (T1), phone audio (T2)	TikTok educational content with audio (T1)	-
Reading	Lyrics from songs (T1)	Translations and analysis from songs (T1)	Blogs written by students (T2)	-
Writing	Translations based on song lyrics (T1)	Song-based vocabulary exercises (T1)	Blogging activities (T2)	-
Assessment	Projector display of online	Automatic quizzes, Google-based forms (T1)	-	-

Substitution

At the Substitution level, technology is utilized as a straightforward replacement for traditional instruments without any significant alteration in functionality. Both teachers clearly demonstrated this trend. Teacher 1 employed projectors to showcase questions from the internet instead of using textbooks or chalkboards, while Teacher 2 utilized PowerPoint slides for presenting lesson material in lieu of handwritten notes. While this level does not revolutionize teaching methods, both educators found it advantageous for enhancing the clarity and visual appeal of their instruction. These observations align with a survey conducted by Blundell et al. (2022), which found that changes in teaching practices were primarily categorized as enhancements, particularly at the substitution and augmentation levels, with data projectors, computers, and presentation software being among the digital technologies most frequently used by teachers.

Augmentation

Progressing to the Augmentation level, technology provides functional enhancements over traditional

methods without significant redesign of the tasks themselves. Teacher 1 clearly exemplified Augmentation by utilizing educational videos, audio-visual multimedia, lipsync applications, and automated quizzes, all of which enriched the learning experience and made it more relevant. Teacher 2's implementation of voice recordings via mobile devices and writing assignments based on blogging also demonstrates a commitment to enhancing teaching, yet her overall engagement at this level was limited. Research conducted in a vocational school in Indonesia indicated that around 84 percent of the technology integration instances in English as a Foreign Language classrooms were classified as belonging to the augmentation category, suggesting that the typical application of technology primarily serves to enrich traditional teaching methods while offering substantial advantages for students' learning encounters (Syathroh, 2022).

Modification

During the Modification phase, technology allows for a considerable overhaul of educational activities. Teacher 1 showcased this by using music, TikTok clips, and vocabulary

analysis tasks that encouraged students to actively participate and engage creatively. These tasks necessitated that learners locate vocabulary, translate song lyrics, and interpret meanings, moving away significantly from merely passively receiving information from the teacher. Teacher 2 also attained this phase by having students contribute to a blog, which went beyond traditional essay writing and brought in aspects of digital communication. These endeavors resonate with insights from research involving EFL instructors in Banyumas Regency, Indonesia, which explored educators' ability to integrate ICT through the SAMR framework and revealed that even though teachers typically exhibited adequate technological pedagogical content knowledge, their use of technology at the modification phase was more apparent among those who had started crafting activities that required students to engage in digital communication and content generation instead of just passively absorbing information (Mualim & Maulana, 2023).

Redefinition

The Redefinition level, where technology facilitates completely new

learning experiences that were previously unimaginable, was only minimally reached. Teacher 1 approached this level closely by leveraging TikTok's lipsync feature, which created a distinctive approach to pronunciation practice that could not be replicated through standard methods. Nevertheless, she recognized that she had not yet pursued more ambitious initiatives such as collaborations with other schools or global learning projects. Teacher 2 did not show any activities at this level, citing limited familiarity with technology and age as the main obstacles. This observation aligns with research involving English teachers in Banyumas Regency, Indonesia, which found that during the qualitative assessment, instructors were able to showcase ICT utilization at the Substitution, Augmentation, and Modification levels, but none of the participants demonstrated usage at the highest stage — Redefinition (Mualim & Maulana, 2023).

This study revealed significant variances in technology integration between the two teachers at the same institution, highlighting differences not only in their individual digital skills but

also in the wider conditions that facilitate or hinder transformative pedagogical practices. The results indicate that both educators utilized a variety of digital tools across different SAMR levels, although differences in their range, depth, and educational intent were influenced by their respective experiences and digital skill sets.

At the most basic level, both educators exemplified the use of technology at the Substitution stage, utilizing items like projectors and PowerPoint slides as straightforward substitutes for traditional classroom tools. Although this stage does not represent revolutionary teaching methods, it nonetheless serves as a significant entryway into instruction that is enhanced by digital means. Advancing to the Augmentation stage, Teacher 1 exhibited a richer and more diverse integration via educational videos, multimedia formats, lipsync applications, and automated quizzes, whereas Teacher 2 utilized voice recordings along with writing assignments based on blogs. At the Modification stage, Teacher 1 integrated songs, TikTok materials, and vocabulary analysis tasks that shifted students from being passive

recipients to active participants, while Teacher 2's blogging assignment similarly introduced aspects of digital communication that extend beyond traditional writing. There was only slight achievement at the Redefinition level, with Teacher 1's lipsync-oriented pronunciation task being the closest example of a truly novel learning experience that cannot be replicated through standard methods. Teacher 2 did not exhibit any significant involvement at this level.

These observations align broadly with earlier studies on the incorporation of technology by EFL instructors in Indonesia. An investigation involving 40 English teachers from senior high schools in Indonesia revealed that educators generally maintained favorable attitudes toward technology use; however, their actual applications, as delineated by the SAMR model, typically remained within the substitution and augmentation stages, with a tendency for teachers to focus more on the technology itself rather than its educational influence on teaching and learning (Setyaningsih et al., 2020). The current research both verifies and expands upon this trend:

while both teachers predominantly functioned within the enhancement category, Teacher 1's employment of TikTok and inventive multimedia initiatives suggests that progress toward the transformation category is possible when educators have adequate confidence in technology and a solid pedagogical justification.

The differences between the two teachers are particularly enlightening in this context. Teacher 1's openness to experimenting with platforms like TikTok, supported by her own postgraduate studies in pronunciation practice, allowed her to achieve the Modification and partial Redefinition stages. This aligns with broader findings indicating that demographic and experiential elements. It including age, teaching experience, and levels of confidence in technology — play a significant role in how Indonesian secondary school English teachers adopt and apply digital tools in their teaching (Dwiastuti et al., 2025). In contrast, Teacher 2's background demonstrates how long-standing instructional practices and a lack of digital fluency can limit a teacher's potential for integrating

technology, despite having the desire to learn.

The influence of institutional and personal support systems also appears as a critical factor. Research carried out in EFL classrooms at Indonesian senior high schools found that while teachers did utilize accessible digital resources like YouTube, Canva, Google Forms, and Kahoot to foster engaging learning environments, challenges such as infrastructural deficiencies and varying levels of digital proficiency continued to create significant barriers to deeper integration (Mahmud et al., 2025). These results reflect the experience of Teacher 2, who seemed to face limitations in advancing beyond the augmentation phase due to restricted access to training and support. Collectively, the data indicates that incorporating technology within EFL classrooms is not merely about having the necessary tools available; rather, it is significantly influenced by the combination of teachers' self-assurance, organizational backing, and pedagogical expertise.

The two educators share a sincere recognition of how technology

can enhance the learning of English by making it more intriguing and easier to access. Their insights on student engagement, understanding, and participation suggest that even limited technology integration at the Substitution and Augmentation levels can contribute positively to the classroom environment. Nonetheless, for technology to effectively revolutionize the educational experience, educational institutions must commit to ongoing professional development that is focused, continuous, and rooted in educational principles. Training that enables teachers to not only use digital tools but also to grasp how these tools relate to educational outcomes will be most beneficial for progress toward the Modification and Redefinition phases. Ultimately, the relevance of the SAMR model in this research underscores its importance as both a means of assessment and a source of innovation. When utilized thoughtfully, it not only categorizes teachers' actions but also creates an opportunity for them to envision alternative possibilities. For future English language instruction at SMAN 7 Medan and similar educational environments, the emphasis should

be on fostering creative thinking alongside the technical abilities required to implement it.

E. Conclusion

The findings of this research illustrate that English educators at SMAN 7 Medan predominantly operate within the Substitution and Augmentation levels of the SAMR framework, primarily utilizing digital resources like PowerPoint and Zoom to either duplicate or slightly improve traditional teaching approaches. A small fraction of educators achieved the Modification level through more creative methods, such as analyzing song lyrics and leveraging social media, while there was no indication of practices at the Redefinition level, where technology redefines the learning experience. Significant obstacles identified include a lack of digital literacy, age-related factors, varying levels of teaching experience, and inadequate institutional support regarding training and resources. These results resonate with prior research, particularly that of Alfiana (2021), affirming the ongoing prevalence of enhancement-level

practices and low digital literacy as persistent barriers to effective technology incorporation. This study adds to the current understanding by situating these challenges within a senior high school context in Medan and emphasizes the necessity for technology adoption that is grounded in pedagogy and aligned with frameworks such as TPACK. Continued investment in teacher professional development, supportive institutional strategies, and curriculum redesign that promotes transformative technology use are vital actions to ensure that digital integration extends beyond mere efficiency toward creating genuinely impactful learning experiences relevant to the 21st century.

To advance technology integration in English language education, future research should evaluate the effectiveness of various professional development approaches, such as peer mentoring, interactive workshops, and blended learning strategies, in facilitating teachers' progression toward transformative forms of teaching.

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