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DIGITAL MEDIA INTEGRATION STRATEGIES IN ENGLISH INSTRUCTION BASED ON THE SAMR FRAMEWORK

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ABSTRACT

This research examines the use of the Substitution, Augmentation, Modification, Redefinition (SAMR) framework as a foundation for strategies integrating digital media into English instruction at Madrasah Ibtidaiyah. The study is grounded in the need to enhance instructional quality at the Islamic elementary level through technologies aligned with learning objectives, learner characteristics, and infrastructural constraints. Through a synthesis of theoretical and empirical literature on technology-enhanced learning, multimedia design, formative assessment, and English for Young Learners, the focus is directed toward mapping strategies at each SAMR level along with illustrative applications, learning outcome indicators, enabling and limiting factors, and practical implications for teachers. Findings indicate that Substitution and Augmentation improve efficiency, clarity of instruction, and feedback, whereas Modification and Redefinition transform task design through collaboration, multimodality, and authentic audiences. Integrating SAMR with TPACK, multimedia principles, and formative assessment yields a staged development pathway ranging from limited-device contexts to creative, product-oriented projects. The study recommends context-responsive strategies to ensure that technology integration produces measurable impacts on language attainment, motivation, and student engagement.

Keywords: SAMR, digital media, english, madrasah ibtidaiyah, elementary education, english for young learners, formative assessment, TPACK, multimedia learning.

INTRODUCTION

English language learning in Madrasah Ibtidaiyah faces simultaneous challenges that include the cognitive and socio-emotional characteristics of children at the primary-school stage, the diversity of cultural and religious backgrounds that shape classroom language practices, and uneven access to and literacy in technology (Cameron, 2001). At this age, students' attention spans are short, their need for concrete experiences is high, and their motivation is strongly influenced by psychological safety, engagement, and recognition from teachers and peers (Dörnyei, 2001). At the same time, schools must remain aligned with the madrasah's vision of nurturing character and social collaboration. The tension between the need for intensive language practice and limited resources demands instructional designs that are linguistically effective while remaining sensitive to school values and real-world constraints.

Policy shifts emphasizing twenty-first-century competencies create space for integrating digital media as a lever for improving language instruction (Trilling & Fadel, 2009). Digital media can enrich linguistic input and models, provide more frequent and guided practice, and enable fast, informative formative assessment (Black & Wiliam, 1998). Yet this potential often fails to materialize when technology is used merely as a replacement for traditional tools without meaningful changes to learning tasks. Simply moving worksheets online without interactive design or playing lengthy videos without scaffolding can increase cognitive load, blur linguistic goals, and add to teachers' administrative burden. The core issue, therefore, is not the availability of applications but the quality of pedagogical decision-making when technology is integrated (Mayer, 2009).

The Substitution, Augmentation, Modification, Redefinition (SAMR) framework, developed by Puentedura, offers a staged lens to ensure that every technological decision carries clear pedagogical justification (Puentedura, 2012). Through this framework, teachers can judge whether technology merely replaces an existing tool, adds essential functions such as feedback and multimodal supports, changes task design to foster collaboration and reflection, or redefines the learning experience into authentic projects previously difficult to enact. In the Madrasah Ibtidaiyah context, this mapping is relevant to all core English skills, from concrete vocabulary acquisition and listening comprehension to oral fluency, guided reading, and short writing, because each skill requires distinct activity designs, durations, and forms of support (Kukulska-hulme, 2009).

To prevent cosmetic integration, SAMR needs to be paired with Technological Pedagogical Content Knowledge (TPACK), which stresses alignment among content knowledge, pedagogy, and technology. Principles of multimedia learning and cognitive load theory further strengthen this foundation by requiring segmented presentation, controlled multimodality, minimal distraction, and learner control (Cameron, 2001; Dörnyei, 2001). The combination of SAMR, TPACK, and multimedia principles provides Madrasah Ibtidaiyah teachers with practical guidance for designing learning experiences that are concise yet meaningful, concrete yet challenging, and engaging without losing sight of linguistic objectives. This integration also offers pathways for schools with limited devices through high-leverage, low-tech approaches, for example, orchestrating whole-class activities with a single teacher device designed for immediate feedback and systematic progress documentation (Trilling & Fadel, 2009).

At this juncture, the urgency of the present study becomes clear, as gaps remain between technological potential and its impact on English learning in Madrasah Ibtidaiyah. These gaps include the absence of an operational roadmap for moving from simple digital media use to tasks that genuinely transform learning; misalignment between media selection, linguistic goals, and children's characteristics; and inconsistent links between digital activities and formative assessment that delivers timely, meaningful feedback. Accordingly, this study is structured to address three guiding questions for the analysis as a whole. The first asks to what extent the SAMR framework can guide Madrasah Ibtidaiyah teachers in selecting and integrating digital media aligned with linguistic objectives, learner characteristics, and infrastructural conditions (Puentedura, 2012). The second asks which strategies are most representative at each SAMR level for vocabulary, listening, speaking, reading, writing, and grammar at the primary level, along with realistic implementation prerequisites, including limited-device scenarios (Hamilton et al., 2016). The third asks what evidence most consistently demonstrates the impact of these strategies on learning outcomes, motivation, and engagement, and how such findings can be operationalized into practical guidance that is coherent with formative assessment and sustainable in classroom practice (Hockly, 2013; Terada, 2020).

This study is positioned not only to offer theoretical justification for employing the SAMR framework but also to produce an operational strategy map, clear evaluation indicators, and context-sensitive implementation recommendations. The ultimate goal is to ensure that digital media integration in English instruction at Madrasah Ibtidaiyah moves beyond surface-level change toward a transformation of learning that yields measurable effects on linguistic attainment, motivation, and student engagement within the realities of available resources (Koehler & Mishra, 2009; Warschauer, 2011).

METHOD

This study employs a targeted literature review that compiles academic books, national and international journal studies, and reports from educational organizations on technology integration in English language learning at the primary level. Sources were selected for their relevance to SAMR, TPACK, multimedia learning, formative assessment, and the characteristics of English for Young Learners. Seminal works, even if older, were included to strengthen the theoretical foundation, while research from the past decade was used to capture current practices such as mobile learning, gamification, electronic portfolios, and short-form video-based instruction. The synthesis was conducted thematically by grouping findings according to SAMR levels, targeted language skills, learning outcomes and process indicators, and contextual factors that influence implementation,

including device availability, teacher training, and parental support.

Although the study does not involve field data collection, objectivity was maintained through source triangulation that combines theory, systematic reviews, and small-scale classroom studies. Inclusion criteria focused on publications relevant to primary education or with clear implications for practice in Madrasah Ibtidaiyah. Exclusion criteria were applied to works that did not present data or arguments about technology use in language learning contexts, or that focused on secondary and higher education without appropriate adaptation to the characteristics of young learners.

RESULT AND DISCUSSION

RESULT

The Role of the SAMR framework as a guide for selection and integration of digital media in madrasah ibtidaiyah classrooms

The synthesis indicates that the Substitution, Augmentation, Modification, Redefinition (SAMR) framework serves a dual role as both a conceptual language and an operational compass for teachers in Madrasah Ibtidaiyah. At the conceptual level, SAMR simplifies discussions of technology integration quality into four easily understood stages, enabling teachers to articulate the pedagogical rationale behind each decision (Christofi et al., 2019). At the operational level, SAMR prompts teachers to examine the correspondence between technological features and specific linguistic goals, such as improving vocabulary accuracy, oral fluency, or listening comprehension. In this way, technology choices are no longer driven by application preference but are anchored to learning outcomes (El-Masri & Tanaka, 2024).

In classroom practice, SAMR helps map the progression from efficiency to transformation. At the substitution stage, teachers gain consistent delivery of materials and easier management without altering the essence of the task (Fazilla et al., 2022). At the augmentation stage, features such as instant feedback, clickable glossaries, and controllable audio and video playback directly enhance instructional quality. At the modification stage, redesigned tasks shift the focus from answer reproduction to revisable language production through collaboration and recorded speech (Yang et al., 2020). At the redefinition stage, the learning space expands to include authentic audiences and creative products that confer social meaning on the use of English.

The utility of SAMR is especially evident in limited-device contexts. The framework discourages cosmetic adoption of technology by demanding justification at every step (Nuraeni et al., 2025). It encourages teachers to ask whether a chosen tool truly adds instructional value or merely shifts workload into digital form (Dankwa et al., 2023). When these questions are addressed candidly and in measurable terms, technology integration becomes more time efficient, results oriented, and aligned with the developmental characteristics of primary school learners.

Representative Strategies at Each SAMR Level for Basic Language Skills

The strategy mapping shows a consistent alignment between the SAMR levels and the six core language skill areas at the primary level. In vocabulary development, digital flashcards function as a substitute that structures spaced repetition, while audio-enhanced glossaries and visual exemplars add functions that accelerate sound meaning association (Syahputri et al., 2025). When tasks are redesigned, collaborative vocabulary banks enable students to formulate simple definitions and example sentences that are revised based on feedback (Alabsi, 2020). At the redefinition stage, students produce short explanatory videos for a real audience so that vocabulary use becomes communicative rather than mere memorization (Hidayah, 2025).

Listening skills benefit substantially from playback controls, automatic subtitles, and segmented transcripts. These added functions increase access to input that can be adjusted to children's processing speed (Ate et al., 2025). When tasks are modified, students record brief oral responses to audio clips, allowing teachers to evaluate the listening strategies employed (Selviani, 2025). At the redefinition stage, thematic vlogs merge listening and speaking as students analyze language models and apply them in narratives intended for safe audiences such as parents or parallel classes (Jing-tao, 2023).

For speaking, short monologue recordings create a safe, repeatable practice space and enable

consistent rubric-based assessment (Noerdjanah & Sugiono, 2020). Task redesign encourages recorded pair conversations and subsequent reviews, allowing students to learn from peer feedback (Jing-tao, 2023). Redefinition is achieved when projects such as English-language school tours target a clear external audience, requiring deliberate language planning, message coherence, and accurate pronunciation (Noerdjanah & Sugiono, 2020; Yoshitomi, 2021). Comparable strategies apply to reading and writing: leveled digital texts and collaborative writing strengthen inferential comprehension and the quality of revisions, while adaptive quizzes with concise explanations sharpen mastery of basic grammatical structures (Al-Obaidli & Cox, 2016; Qazi & Khan, 2023).

Impact on Learning Outcomes, Processes, and Affective Aspects

The compiled data indicate that the substitution and augmentation phases contribute to classroom management efficiency, clarity of instruction, and improved accuracy in vocabulary and grammar. These effects are measurable through gains in formative test scores, reductions in repeated errors, and higher task completion rates (Cheung, 2021). The modification and redefinition phases are associated with increases in oral fluency, coherence in short writing, and the ability to comprehend leveled texts, as reflected in stronger performance on rubrics and higher quality revision records (Chou & Block, 2018).

Process indicators reinforce the interpretation of learning outcomes. Increases in participation frequency, steadier week-to-week task completion, and more intensive use of automated feedback correlate with stronger end-of-unit results (McClain & North, 2021). In classes that employ digital portfolios, growth curves are visible in students' willingness to revise and their ability to provide substantive comments on peers' work (Zhang et al., 2024). These findings suggest that technology functions as a lever when it is directly linked to a formative assessment mechanism whose continuity is maintained (Awuor & Okono, 2022; Syaputra & Nurwita, 2024).

Affective dimensions are equally important. Students' motivation, interest, and self-efficacy tend to rise when learning products have a real audience and when progress is clearly documented (Awuor & Okono, 2022). Small successes made visible in portfolios build confidence and foster a sense of ownership over the learning process (Johnson et al., 2000). At the same time, the results highlight the need for data protection and curated sharing spaces so that public-facing activities remain psychologically safe and aligned with the values of the madrasah.

Influencing Context Factors and Mitigation Strategies

Successful implementation depends on teachers' professional readiness, the quality of task design, the availability of devices and connectivity, and the broader school culture. Training that positions teachers as task designers using the SAMR framework leads to more durable changes in practice than training that merely introduces application features. Curating child-friendly media and employing controlled multimodal design reduce cognitive load, while offline-first planning lowers the risk of technical disruption (Lim & Noor, 2019).

Parental support strengthens sustainability, especially when classes move into the stage of producing work for an audience (Omidi & Yarahmadzahi, 2016). Clear school policies on data protection, student intellectual property, and internal publication standards increase teachers' confidence to advance to the redefinition stage (Ramadania, 2021). Conversely, major obstacles such as limited devices, unstable connections, and preparation time can be mitigated through a gradual approach that begins with substitution, proceeds to augmentation, and then introduces collaborative tasks once classroom routines have stabilized (Lim & Noor, 2019).

Low-tech strategies are highly relevant for schools with limited resources (Aprianto, 2024). A single teacher-held device can orchestrate rich whole-class experiences, including projected materials, shared quizzes, rotating spoken recordings, and curated portfolio showcases (Jiang & Ning, 2022). As connectivity improves, classes can expand practice to individual and collaborative online tasks without abandoning the central principle of alignment among linguistic goals, task design, and the technological features selected (Schwab, 2022).

DISCUSSION

How SAMR Guides Selection and Integration

The findings affirm that SAMR is not merely a set of stage labels but a decision-making logic

that ties technology to linguistic objectives (Ummam et al., 2021). Teachers who employ SAMR tend to begin by asking about the instructional value added: whether the technology simply changes the medium, adds relevant features, reshapes the task, or creates experiences that were previously unattainable (Krisbiantoro & Ashari, 2024). This line of questioning shifts the focus from “which app to use” to “what learning change is produced,” thereby reducing cosmetic adoption and improving coherence between tools and outcomes (Al-Khalidi, 2021).

Integration with TPACK strengthens SAMR’s prescriptive power. Content knowledge determines the linguistic targets, pedagogical knowledge guides delivery strategies appropriate to children’s developmental levels, and technological knowledge selects features that best support both (Ummam et al., 2021). Principles of multimedia learning refine these decisions by requiring segmentation, signaling of key information, and modality control so that cognitive load remains proportional. With these three frames, SAMR does not stand alone; it functions as a hub linking content, pedagogy, and technology within measurable task designs (Mohebi, 2021).

The Madrasah Ibtidaiyah context provides further justification for using SAMR. The need for activities that are brief, concrete, and engaging demands careful planning so that every digital element has a clear pedagogical rationale (Nair & Chuan, 2021). The SAMR framework helps ensure that each integration step has realistic, monitorable impact targets, enabling teachers to allocate preparation time to the aspects most influential for children’s language development.

Operationalization of Strategies at Each Level and Prerequisites for Implementation in Madrasah Ibtidaiyah

The strategy mapping at each SAMR level outlines an operational pathway that schools with varying resources can adopt. Classes can begin with well-structured substitution to standardize access to materials and minimize variation in delivery (Ahmada, 2025). Once this routine is stable, added functions such as instant feedback and clickable glossaries should be prioritized because they directly improve accuracy and comprehension without increasing classroom management complexity (Ge et al., 2021). The next stage introduces collaborative writing and brief spoken recordings so that students enter a space of language production that supports revision.

Consistent implementation prerequisites emerge across contexts. Instructions should be brief, segmented, and explicit, aligned with children’s attention spans (Almeida Abar & de Almeida, 2025). Simple rubrics are needed to maintain assessment consistency and guide revision. Contingency plans for offline delivery ensure continuity when connectivity is unreliable (Drugova et al., 2021). Repositories of task templates, sample student work, and reflection guides reduce teachers’ preparation burden while safeguarding implementation quality. By meeting these prerequisites, classes can move toward redefinition through authentic projects with safe audiences, ensuring that language is used in meaningful communicative situations.

Equity of access remains a core principle. Low-tech strategies such as whole-class projection, rotating recordings, and curated portfolios enable all students to participate without requiring personal devices (Alivi, 2019). As infrastructure improves, classes can expand to individual and mixed synchronous-asynchronous tasks without abandoning the central principle of alignment between linguistic goals and technological features.

Proof of Impact and Operationalization Becomes a Practice Guide and Assessment

A positive correlation between process indicators and outcomes shows that technology is most effective when it is tied to formative assessment. Rapid feedback shortens the error cycle and prompts immediate improvement, while digital portfolios make progress visible and meaningful for students and parents (Tseng, 2019). To ensure consistency, practice guidelines should specify a minimal set of indicators to be monitored, such as growth in core vocabulary, gains in short-duration oral fluency, and the quality of written revisions grounded in substantive comments (Kohnke & Zou, 2025).

Operationalizing assessment requires a balance between platform data and teacher observation. Quantitative data such as completion rates and time on task provide early signals, whereas teachers’ qualitative notes capture nuances of language strategies and learning dispositions (Lukas et al., 2020). Integrating these sources yields sharper instructional decisions, for example when to slow the pace of input, when to extend from reproductive to productive practice, and when

to introduce an authentic audience. In this way, technology is positioned not as an end in itself but as a tool that supports a cycle of planning, action, and reflection.

Ethical considerations and child protection must accompany all practices. Publication of student work should be restricted to safe environments, identities should be safeguarded, and parental consent should be managed transparently (Glотова & Самохвалова, 2019). Emphasizing these principles ensures that motivation gains from having an audience do not compromise psychological safety, while sustaining the school community's trust in digital initiatives.

Implications of School Policy, Access Equity, and Professional Development

Schools that successfully cultivate SAMR-based practice generally adopt policies that prioritize task redesign rather than the mere adoption of new applications (Crăciun, 2019). Such policies create space for teacher collaboration to design, pilot, and refine activities, provide managed shared devices, and establish clear standards for data protection. Measures of success no longer stop at counting devices; they focus on task quality and agreed indicators of learning gains.

Equitable access is supported by carefully planned low-tech strategies. A single teacher-held device can enable rich whole-class learning when paired with sound planning, including segmented materials, whole-class feedback mechanisms, and scheduled documentation of progress (Hoffmann, 2022). As schools expand their infrastructure, implementation proceeds in stages without relaxing design principles, so that technical complexity does not reimpose burdens on teachers and students.

Effective professional development is cyclical and practice based. Teachers act as designers who evaluate task impacts on process and outcome indicators, then share findings within professional learning communities (Vogt & Westerlin, 2021). This approach nurtures a culture of reflection and sustained innovation. With strong school leadership, proven practices can be disseminated across classes so that transformation does not depend on individuals but becomes institutionalized within the culture of the madrasah (Cardullo et al., 2018).

CONCLUSION

The Substitution, Augmentation, Modification, Redefinition (SAMR) framework has proven useful as a foundation for designing strategies to integrate digital media into English instruction at Madrasah Ibtidaiyah. Its chief strength lies in its simplicity for communicating the desired degree of transformation and in its flexibility to be combined with TPACK, multimedia learning principles, and formative assessment approaches. An implementation pathway that begins by strengthening basic practices at the Substitution and Augmentation levels, proceeds to task redesign at the Modification level, and ultimately moves toward authentic learning experiences at the Redefinition level enables gradual, realistic, and inclusive improvement. In contexts with limited devices and connectivity, carefully designed low-tech strategies can still yield meaningful gains in linguistic attainment, motivation, and student engagement. The primary recommendations for practitioners are to develop a clear classroom roadmap, align technology decisions with linguistic goals, manage students' cognitive load, and position formative assessment as the main lever for improving instruction. Future research is encouraged to test the SAMR trajectory experimentally in Madrasah Ibtidaiyah classrooms with more fine-grained outcome indicators and long-term observations of growth in learning motivation and speaking confidence.

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