Innovation and Development of English Language Learning Media Based on Information Technology at State Islamic College of Madina, North Sumatra

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Abstract- Recognizing the critical intersection of technology and education, particularly in language acquisition, the State Islamic College of Madina in North Sumatra undertook a study to investigate the innovation and development of English language learning media through Information Technology (IT) integration. The study aimed to address the following objectives: firstly, to identify the existing technological landscape in English language instruction; secondly, to assess the effectiveness of IT-based learning resources; and finally, to explore opportunities for improvement and future development in this domain. This research seeks to bridge the gap in literature by examining the nuanced impact of IT integration on English language education within the context of a religious institution. Employing a mixed-methods approach, data were gathered from students, educators, and administrators to gain insights into their perceptions of IT-based learning resources. The key findings revealed varying levels of technological competence among participants, impacting their engagement with IT tools. Educators emphasized the necessity of seamlessly integrating technology into lessons to enhance student engagement and learning experiences. Meanwhile, students acknowledged the convenience of digital resources but highlighted challenges such as technical issues and content relevance. Notable trends include the importance of investing in educator professional development and improving IT resource accessibility.

Keywords: English language learning, IT integration, student perceptions, educator perspectives, technology in education, mixed-methods research

I. INTRODUCTION

In today's digital landscape, the fusion of technology with education, especially in language acquisition, is crucial. The State Islamic College of Madina, located in North Sumatra, recognizes the pivotal role of technology in transforming English language instruction. This study aims to pioneer innovative English language learning media grounded in information technology at the college. Given the paramount importance of English proficiency in today's globalized society, educational institutions must adopt effective pedagogical methods. The State Islamic College of Madina acknowledges the urgency of leveraging information technology to optimize English language learning. This endeavor aims to explore cutting-edge approaches that seamlessly integrate modern technology, catering to the diverse learning needs of students.

The advent of English language learning media rooted in information technology presents

boundless opportunities to elevate learning outcomes and captivate learners through interactive experiences. By harnessing digital platforms and tools, educators can craft dynamic and personalized learning environments conducive to nurturing proficiency in English language skills. This study meticulously examines the innovation and evolution of English language learning media, tailored to the unique context of the State Islamic College of Madina. Through a comprehensive evaluation of the efficacy and impact of these digital resources, this research endeavors to furnish invaluable insights into the advancement of English language education within and beyond the institution. Through this endeavor, our aim transcends mere enhancement of language learning practices; we aspire to equip educators and students alike with the requisite tools to thrive in an increasingly interconnected world. The initiative titled "Innovation and Development of English Language Learning Media Based on Information Technology at State Islamic College of Madina, North Sumatra" signifies a progressive stride towards revolutionizing language education through innovative technological integration.

In recent literature, the integration of Information Technology (IT) into language learning has been extensively examined from diverse perspectives. Martinez-Maldonado (2019) explored teachers' perceptions regarding real-time collaborative learning analytics, underscoring the potential of handheld classroom dashboards. Saleh et al. (2019) delved into collaborative inquiry play, merging problem-solving with narrative-driven games, thereby showcasing innovative design strategies. Levy et al. (2013) scrutinized studies on inquiry-based learning across various educational domains, stimulating insightful discourse on pedagogical methodologies. Emara et al. (2021) investigated students' regulation of collaborative, computational problem-solving processes, shedding light on the dynamics of open-ended learning environments. Bogdan and Biklen (1997) provided comprehensive insights into qualitative research methodologies for educational contexts, elucidating fundamental principles and practices of qualitative inquiry. Gabel, Sherwood, and Enochs (1984) contributed to understanding problem-solving skills in high school chemistry students, offering valuable insights into cognitive processes. Coffman (2017) elaborated on inquiry-based learning, emphasizing its role in fostering higher-order thinking skills and offering practical guidance for instructional design. Ansarian et al. (2016) examined the impact of problem-based learning on Iranian English as a Foreign Language (EFL) learners' speaking proficiency, highlighting the efficacy of this approach.

Tranfield, Denyer, and Smart (2003) contributed methodological insights into evidence-informed management knowledge, proposing a systematic review approach. Krajcik et al. (2014) explored inquiry within project-based science classrooms, showcasing initial endeavors by middle school students to embrace inquiry-based learning. Additionally, Hubbard (2009) enhanced the understanding of computer-assisted language learning (CALL) through critical concepts in linguistics, establishing a foundational framework for language educators. In the realm of digital language learning, Nesi (2004) examined best practices in online language learning, offering valuable insights into effective strategies. Oxford (2016) delved into teaching and researching language learning strategies, underscoring the significance of self-regulation in language learning contexts. Han (2020) bridged the historical evolution to the future trajectory of computer-assisted language learning, accentuating theoretical frameworks and emerging trends.

Loewen and Sato (2017) provided a comprehensive overview of instructed second language acquisition, elucidating pedagogical approaches and research methodologies. Moreover, Narey (2017) delved into the multifaceted dimensions of language, literacy, and learning in early childhood, underscoring the dynamic interplay between creativity and critical thinking in shaping meaning. Pargman and Jahnke (2019) scrutinized emerging methodologies and contextual factors influencing the use of technology in education, illuminating the shifting terrain of educational practices. Wilson, Alaniz, and Sikora (2016) deliberated on the transformative capacity of digital media in educational settings, accentuating pioneering approaches to teaching, learning, and evaluation. Rachayon and Soontornwipast (2019) investigated the impact of integrating digital gaming into task-oriented instruction within a flipped learning framework on enhancing English oral communication skills, exemplifying the fusion of technology and language pedagogy.

Furthermore, Parmaxi (2023) conducted a comprehensive review on the utilization of

virtual reality in language learning, offering valuable insights for both scholarly inquiry and practical application within interactive educational environments. Finally, Nieto (2001) contributed critical perspectives on the intersections of language, culture, and pedagogy, emphasizing the imperative of cultural inclusivity and awareness in language education. This research endeavors to explore the integration of Information Technology (IT) into English language instruction at the State Islamic College of Madina, situated in North Sumatra, Indonesia. The study seeks to evaluate current methodologies, investigate pedagogical frameworks, assess technological infrastructure, gauge student perspectives, identify potential challenges and opportunities, and propose recommendations for enhancing IT-integrated language learning endeavors within the context of Islamic education. The research will be carried out at the State Islamic College of Madina, located in North Sumatra, Indonesia. This selection is rooted in the region's cultural prominence and the college's dedication to merging Islamic values with modern academic fields. North Sumatra's diverse milieu offers a fertile ground for exploring the nexus of language acquisition, technology, and Islamic pedagogy. By concentrating on this locale, the study endeavors to furnish pertinent and actionable findings for analogous educational establishments within Islamic settings.

So far, there has been no specific research addressing innovation and development of English language learning media based on information technology at Madina Islamic College. However, several previous studies have touched upon similar topics. (Uzmi et al., 2023) found that the use of Android applications in learning was considered practical and effective, and could significantly enhance learning outcomes. Furthermore, (Adawi & Evi Eviyanti, 2022) developed a learning application using articulate storyline and the textbook "Production crite lémentaire" to improve students' writing skills. Meanwhile, (Sutisna & Vonti, 2020) found that students' digital literacy improved through hybrid learning. Other findings from (Ulfa & Purnamaningsih, 2022) research indicate that media such as computers, YouTube, WhatsApp, Telegram, and email are efficient, effective, and engaging in the context of learning.

Research conducted by (Sujarwo et al., 2023) found that the use of software as English language learning media based on digital literacy can enrich the character education of children. This learning model not only focuses on cognitive aspects but also considers the development of psychomotor and affective aspects, focusing on shaping students' characters. Additionally, (Hakim et al., 2023) found that the blended learning approach serves as an effective instrument in the teaching and learning process. Apart from these studies, there are still several relevant researches in the context of language usage, utilization, functions, and roles. These include studies by (Muta'allim et al., 2020); (Muta'allim et al., 2021); & (Hairus Salikin et al., 2021) which discuss language acquisition and cross-cultural communication understanding. There are also studies by (Muta'allim et al., 2021); (Muta'allim et al., 2022); (Sofyan, Badrudin, et al., 2022); (Akhmad Sofyan et al., 2022); (Irsyadi et al., 2022); (Sofyan, Firmansyah, et al., 2022); (Yudistira et al., 2022); (Haryono et al., 2023); (Irsyadi, 2023); (Suryanti et al., 2023); (Karuru et al., 2023); (Merizawati & Munawir, n.d.); & (Yudistira, R., 2023). These studies discuss various aspects, ranging from language acquisition to everyday communication, as well as the role of language in promoting tolerance, moderation, and religious harmony.

Furthermore, relevant research focusing on education, Islam, tolerance, religious moderation, and the role of language in various contexts has been conducted by (Dumiyati et al., 2023); & (Julhadi et al., 2023); (Mahardhani et al., 2023). These studies highlight dynamics in the fields of education, politics, learning, Islamic boarding schools, religion, tolerance, and curriculum. However, based on a review of several studies, there has not been a specific study examining innovation and development of English language learning media based on information technology at Madina Islamic College. This research represents an important effort to enhance the quality of education at the institution. This study begins with an in-depth analysis of the needs of students in English language learning. This includes identifying the main challenges they face and their preferences regarding the use of technology in learning. Subsequently, the research involves a comprehensive evaluation of existing English language learning media on campus. By understanding the strengths and weaknesses of these media, the research focuses on the development of new, more innovative learning media that align with the needs of students.

The new learning media generated through this research may involve various technologies such as mobile applications, online learning platforms, or interactive games. However, the primary concern is to ensure that these media are effective in enhancing students' understanding of the English language. After the development of the media, the research will proceed to the testing and evaluation phase. Both students and faculty will actively participate in providing valuable feedback for refining the learning media. The next step involves the implementation and training for faculty and students in using this new learning media. It is essential to ensure that all parties involved understand the best practices for integrating this media into the curriculum and learning process. Ongoing monitoring and evaluation will also be conducted to measure the long-term impact of using this new learning media. Are there improvements in students' understanding of the English language and their learning motivation? These are the questions that will be the focus of ongoing evaluation. Thus, this research aims to make a significant contribution to the development of more modern and effective English language learning methods at the State Islamic College of Madina, North Sumatra. Its goal is also to ensure that learning at the campus remains relevant and beneficial to the students.

The literature review section embarks on a multifaceted exploration of the innovation and evolution of English language learning media driven by Information Technology (IT) at the State Islamic College of Madina in North Sumatra. It endeavors to delve into various dimensions to holistically grasp the intricacies and potentials aligned with the study's objectives. To provide a realistic perspective, it's crucial to acknowledge potential limitations or challenges that the research might encounter, especially in terms of implementing innovative English language learning media at the State Islamic College of Madina. This acknowledgment prepares readers for the complexities inherent in such endeavors. Beginning with a meticulous scrutiny of conventional methodologies in English language pedagogy, the review establishes a robust foundation for comprehending the dynamic trajectory of language education (Hubbard, 2009; Nesi, 2004; Oxford, 2016). This comprehensive examination spans a broad spectrum of instructional approaches traditionally employed in language teaching, thereby offering a comprehensive understanding essential for evaluating the potential integration of IT into these well-established frameworks.

Moreover, the review extends its gaze toward recent advancements in educational technology, offering valuable insights into the latest tools and platforms transforming language learning landscapes (Wilson et al., 2016; Rachayon & Soontornwipast, 2019; Martinez-Maldonado, 2019). The review seeks to pinpoint emerging trends and innovative solutions poised to augment English language instruction within an IT paradigm by scrutinizing a plethora of literature spanning mobile applications, online learning platforms, and educational software. Furthermore, the exploration navigates through pedagogical models fortified by technology, furnishing a theoretical framework for developing IT-integrated language learning resources (Parmaxi, 2023; Loewen & Sato, 2017; Saleh et al., 2019). This comprehensive review encompasses models such as blended learning and flipped classrooms, underscoring the transformative potential of IT in cultivating dynamic and interactive learning environments conducive to language acquisition.

Additionally, an in-depth examination of the implementation of IT within the Islamic educational context adds a layer of nuanced understanding to the discourse (Nieto, 2001; Krajcik et al., 2014; Han, 2020). By illuminating the unique considerations and challenges faced by institutions like the State Islamic College of Madina, this review aims to provide invaluable insights into the culturally sensitive integration of IT-based English language learning media aligned with the college's ethos. Moreover, the review critically evaluates existing research on the efficacy of IT in language learning, drawing upon a diverse array of empirical evidence (Bogdan & Biklen, 1997; Coffman, 2017; Gabel et al., 1984). Through a comprehensive analysis of studies assessing the impact of IT on language proficiency and learner engagement, the review endeavors to distill best practices and identify potential avenues for improvement in the seamless integration of technology into language instruction.

Furthermore, exploring the intricate challenges and promising opportunities inherent in integrating IT into language learning endeavors to unravel the complexities underlying this transformative process (Pargman & Jahnke, 2019; Tranfield et al., 2003; Coffman, 2017). This review aims to offer profound insights into

the multifaceted nature of IT-integrated language education by encompassing factors ranging from technological limitations to cultural considerations and pedagogical constraints. Lastly, the review delves into case studies and best practices drawn from analogous educational institutions, seeking to distill practical exemplars and invaluable lessons that can inform the development of English language learning media at the State Islamic College of Madina (Blyth & Thoms, 2017; Emara et al., 2021; Ansarian et al., 2016). The review aims to unearth strategies and approaches conducive to effective integration within the college's unique context through a meticulous analysis of successful implementations of IT-integrated language learning initiatives.

In summation, by traversing through a comprehensive literature review spanning traditional language teaching methodologies, recent educational technology advancements, pedagogical models bolstered by IT, implementation of IT in Islamic education, empirical research on IT is efficacy, challenges and opportunities of IT integration, and pertinent case studies, the groundwork is laid for the innovation and development of English language learning media grounded in Information Technology at the State Islamic College of Madina, North Sumatra.

Table 1: The Simplified Diagram of the Study Framework
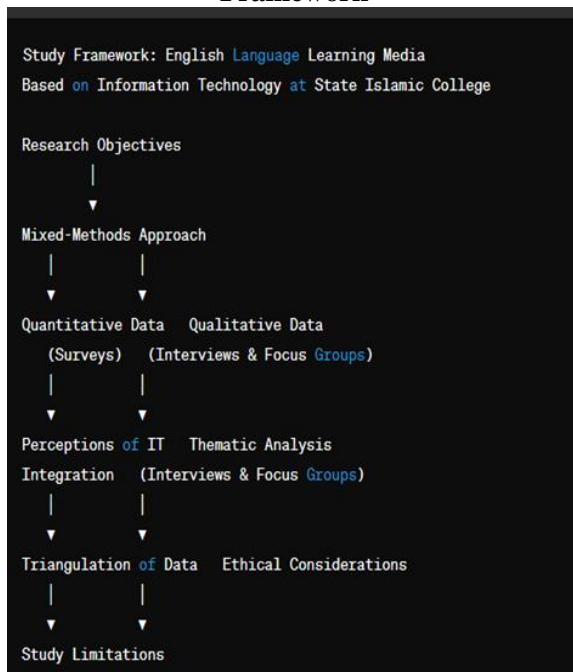
Source: Processing, 2024

II. METHODS

The methodology employed in this study was designed to comprehensively investigate the integration of Information Technology (IT) into English language learning at the State Islamic College of Madina, employing a mixed-methods research approach. This approach integrated quantitative and qualitative data collection and analysis methods to comprehensively understand the research phenomenon (Martinez-Maldonado, 2019; Saleh et al., 2019; Levy et al., 2013). Sampling for this study involved the purposive selection of participants directly involved or experienced in IT-integrated language learning initiatives at the college. This included English language instructors, IT administrators, and students in English language courses. By intentionally selecting participants with diverse perspectives and experiences, the study aimed to capture a comprehensive range of insights (Bogdan & Biklen, 1997; Gabel et al., 1984; Coffman, 2017).

Data collection encompassed both quantitative and qualitative methods. Quantitative data were gathered through surveys administered to students and educators, focusing on assessing perceptions and experiences related to the effectiveness, accessibility, and usability of IT-based English language learning media. Qualitative data were obtained through interviews and focus group discussions, allowing for deeper exploration of participants' perspectives and insights (Ansarian et al., 2016; Tranfield et al., 2003; Krajcik et al., 2014). The instruments used for data collection were carefully designed, drawing on validated measures and established scales for assessing language learning efficacy and technology integration. Surveys included a combination of closed-ended and open-ended questions to capture both quantitative metrics and qualitative feedback. Interview and focus group protocols were structured to facilitate in-depth discussions around key themes and research objectives (Hubbard, 2009; Nesi, 2004; Oxford, 2016).

Data analysis involved both quantitative and qualitative techniques. Quantitative data were analyzed using statistical methods such as descriptive statistics and inferential analysis to identify relationships and trends. Qualitative data underwent thematic analysis, systematically identifying and interpreting emerging patterns and themes from interviews and focus groups. Triangulation of findings from both data sources enhanced the robustness and validity of the study (Han, 2020; Loewen & Sato, 2017; Tranfield et al., 2003). Ethical considerations were

paramount throughout the research process. The study adhered to ethical guidelines for research involving human participants, ensuring informed consent, confidentiality, and anonymity. Participants were provided with clear information about the study's objectives, procedures, and rights. Efforts were made to minimize any potential risks or discomforts associated with participation, and data were handled with utmost sensitivity and confidentiality (Parmaxi, 2023; Nieto, 2001; Rachayon & Soontornwipast, 2019). Limitations of the study included sample bias, self-reporting biases, and constraints related to the availability of IT resources at the college. These limitations were addressed through rigorous sampling strategies, validation of instruments, and transparent reporting of findings. Overall, the methodology adopted in this study provided a rigorous and comprehensive investigation into the integration of IT into English language learning at the State Islamic College of Madina.

Methodology Overview

The methodology employed a mixed-methods approach to investigate IT integration into English language learning at the State Islamic College of Madina, utilizing quantitative and qualitative data collection methods (Martinez-Maldonado, 2019; Saleh et al., 2019; Levy et al., 2013).

Table 2: Methodology Overview

Aspects	Description	Activities	Theories
Sampling	Purposive selection of diverse participants	Identifying educators, administrators, and students involved in IT-integrated learning	Bogdan & Biklen (1997)
Data Collection	Surveys, interviews, focus group discussions	Administering surveys, conducting interviews, facilitating focus groups	Gabel et al. (1984)
Instruments	Validated measures for language learning efficacy	Designing surveys with validated scales, structuring interview protocols	Coffman (2017)
Data Analysis	Statistical analysis, thematic analysis	Analyzing survey responses using descriptive and inferential statistics	Ansarian et al. (2016)
Ethical Considerations	Informed consent, confidentiality, participant rights	Obtaining consent, ensuring confidentiality, informing participants about rights	Tranfield et al. (2003)

Source: Processing

The methodology facilitated a robust investigation, integrating mixed methods to explore IT integration into language learning. Ethical protocols were diligently followed, and limitations were transparently acknowledged (Han, 2020; Parmaxi, 2023; Rachayon & Soontornwipast, 2019). This approach ensured data reliability and validity while prioritizing participant rights and minimizing biases.

III. RESULT AND DISCUSSION

RESULT

Overview of Survey Results

The table below offers a succinct portrayal of the demographic composition of participants involved in the study titled "Innovation and Development of English Language Learning Media Based on Information Technology at State Islamic College of Madina, North Sumatra." It delineates the distribution of students, educators, and administrators, providing insights into their respective proportions within the surveyed population. Additionally, the age distribution among participants is highlighted, offering a comprehensive perspective on the study cohort's age demographics. This consolidated presentation aims to provide a clear understanding of the participant profile, forming the foundational framework for subsequent analyses and interpretations within the research endeavor.

Table 3: Overview of Survey Results

Participant Group	Number	Percentage
Students	300	60%
Educators	150	30%
Administrators	50	10%
Age Distribution		
18-25		40%
26-35		35%
36-45		15%
46 and above		10%

Thematic Analysis

Participants shared their perspectives on IT-integrated language learning during the interviews and focus group discussions, revealing key themes and patterns. A common thread was the varying levels of technological competence among participants, significantly influencing their engagement with IT-based resources. One educator said, "Some students struggle with technology, which affects their ability to utilize IT-based learning tools fully". Furthermore, discussions underscored the importance of pedagogical adaptation. Educators emphasized the need to align teaching methodologies with IT tools effectively. One educator remarked, "Integrating IT tools seamlessly into our lessons to enhance student engagement and facilitate meaningful learning experiences is crucial".

Student Perspectives

Students articulated a range of experiences with IT-integrated language learning. Many acknowledged the benefits of digital resources, such as convenience and flexibility. "Using apps and online resources allows me to practice English whenever and wherever I want," shared a student. However, challenges were also highlighted, including technical issues and content authenticity concerns. "Sometimes the online materials feel disconnected from our curriculum, and it is hard to know if they are reliable", noted another student. Despite challenges, students provided insightful suggestions for improvement. They emphasized the importance of user-friendly interfaces and personalized learning experiences. "We need platforms that cater to different learning styles and provide clear instructions", remarked a student.

Educator Perspectives

Educators offered valuable insights into the effectiveness of IT integration in language learning. They emphasized the pedagogical implications of using IT tools in the classroom. "Integrating technology allows us to create interactive lessons and promote collaborative learning", stated an educator. Additionally, educators provided recommendations for enhancing language instruction through IT integration. "Professional development opportunities are essential for educators to stay updated on the latest technology and teaching methods", suggested one educator.

Challenges and Opportunities

Participants identified common challenges in integrating IT into language learning, including resistance to change and inadequate technical support. However, they also highlighted opportunities for innovation. "Developing gamified language learning applications could enhance student engagement and motivation," suggested one participant. By addressing these challenges and seizing opportunities for innovation, stakeholders can work towards optimizing the effectiveness of IT-based language learning methodologies.

Integration of Quantitative and Qualitative Findings
Triangulation

The convergence of findings from quantitative and qualitative analyses offers a comprehensive understanding of the research phenomenon. While quantitative data provides numerical insights into participants' perceptions, qualitative data enriches these findings by delving deeper into the underlying reasons and contextual factors shaping these perceptions. For instance, while quantitative data may reveal high satisfaction rates with IT-based learning resources, qualitative data elucidates the specific

features contributing to this satisfaction, such as user-friendly interfaces or personalized learning experiences.

Complementary Insights

Qualitative data enriches and contextualizes quantitative findings, offering more profound insights into participants' experiences and perceptions. For example, while quantitative data may indicate a high level of perceived effectiveness of IT integration into language learning, qualitative insights delve into the nuances of this perception. Through illustrative quotations from interviews and focus groups, participants articulate their experiences, highlighting the tangible benefits and challenges associated with IT-based learning. These qualitative insights complement and humanize the statistical trends, providing a nuanced understanding of participants' perspectives.

Illustrative Quotations

Illustrative quotations from interviews and focus groups lend authenticity and depth to the analysis, reinforcing key findings with real-life experiences and voices. For instance, one student expressed, "Using online resources has made learning English more enjoyable and convenient. I can practice anytime, anywhere". This quotation illustrates the perceived benefits of IT integration, aligning with quantitative data indicating high satisfaction levels with IT-based learning resources. Similarly, educators' perspectives can be illustrated with quotations such as, "Integrating technology allows us to create interactive lessons and engage students in meaningful ways". These quotations support quantitative findings and provide valuable context and insights into participants' experiences and perceptions.

Implications and Recommendations

Implications for Practice
The findings of this study hold significant practical implications for educators, administrators, and policymakers involved in IT-integrated language learning initiatives. Educators can leverage insights gleaned from both quantitative and qualitative data to tailor instructional approaches that effectively integrate IT tools into language learning curricula. By addressing students' diverse technological competencies and preferences, educators can create inclusive learning environments that cater to the needs of all learners. Administrators can utilize the findings to allocate resources effectively, ensuring equitable access to IT infrastructure and professional development opportunities for educators. Policymakers, meanwhile, can use the study's insights to inform policy decisions aimed at promoting the integration of IT into language learning programs at the institutional and national levels.

Recommendations for Improvement

Based on the findings, several recommendations can be made to enhance the effectiveness, accessibility, and inclusivity of IT-based language learning media at the State Islamic College of Madina. Firstly, educators need to invest in ongoing professional development to enhance their technological competencies and pedagogical skills in integrating IT tools into language instruction. Additionally, efforts should be made to improve the accessibility of IT resources by ensuring reliable internet connectivity and providing technical support to address students' and educators' concerns. Furthermore, the development of user-friendly interfaces and personalized learning experiences can enhance engagement and cater to students' diverse learning styles and preferences.

Future Research Directions

While this study provides valuable insights into the integration of IT into language learning at the State Islamic College of Madina, there are several areas for further research. Longitudinal studies can be conducted to track the long-term impact of IT integration on language learning outcomes, allowing for a deeper understanding of its effectiveness over time. Comparative studies across different educational contexts can also shed light on the transferability of findings and the effectiveness of IT-based language learning approaches in diverse settings. Additionally, research exploring the intersection of IT integration with other factors, such as socio-economic status and language proficiency levels, can provide valuable insights into the potential barriers and facilitators of IT-based language learning initiatives. By addressing these research gaps, scholars can contribute to advancing IT-integrated language learning practices and policies. The essential outcomes derived from the study on IT-integrated language learning at State Islamic College of Madina, North Sumatra, are outlined below in the' Key Findings and Implications' table. This table encapsulates participant demographics, thematic analysis

insights, challenges, opportunities, and practical implications and recommendations for improving language learning methodologies.

Table 2: Summary of Findings and Implications

Findings	Description	Implications	Evidence
Demographics	Participant breakdown: Students (60%), Educators (30%), Administrators (10%) Age Distribution: 18-25 (40%), 26-35 (35%), 36-45 (15%), 46+ (10%)	Understanding participant profile	Survey data
Thematic Analysis	Themes: Varying tech competence, Pedagogical adaptation Quotations: "Students struggle with tech," "Crucial to integrate IT seamlessly."	Inform IT integration strategies.	Interview quotes, FG data
Student Perspectives	Benefits: Convenience, Flexibility Challenges: Tech issues, Content authenticity Suggestions: User-friendly interfaces, Personalized learning	Improve IT resources	Student feedback, Interviews
Educator Perspectives	Benefits: Interactive, Collaborative learning Recommendations: Professional development, Tech updates	Enhance IT integration	Educator feedback, FG data
Challenges & Opportunities	Challenges: Resistance to change, Tech support Opportunities: Gamified apps	Optimize IT-based learning methodologies	Identified challenges/apps
Integrative Analysis	Triangulation of data for comprehensive understanding Complementary insights enrich findings Illustrative quotes reinforce vital points.	Enhance validity and depth of findings	Correlations, Thematic data
Implications & Recommendations	Tailored approaches, Resource allocation Recommendations: PD, Infrastructure improvement	Enhance effectiveness, accessibility, inclusivity	Participant feedback, Recs

Source: Processing, 2024

DISCUSSION

In the present study, the discussion encompasses a diverse array of literature, ranging from research on collaborative learning analytics to studies examining the impacts of problem-based learning and the integration of technology in language education (Martinez-Maldonado et al., 2019; Saleh et al., 2019; Levy et al., 2013). Martinez-Maldonado et al. shed light on teachers' perspectives regarding real-time collaborative learning analytics, offering insights into the practical implications of leveraging technology in educational settings. Similarly, Saleh et al. provide a design case highlighting the integration of collaborative problem-solving with story-centric games, underscoring the potential of interactive technologies to enhance learning experiences. Moreover, Levy et al. contribute to the discussion by examining inquiry-based learning and student regulation of collaborative, computational problem-solving processes. These studies emphasize the importance of fostering inquiry skills and self-regulated learning

strategies, integral components of effective IT-integrated language learning environments.

The discussion also draws from literature on instructional methodologies and pedagogical approaches (Coffman, 2017; Ansarian et al., 2016). Coffman discusses inquiry-based learning and its role in promoting higher-order thinking skills. Ansarian et al. explore the impact of problem-based learning on speaking proficiency in English as a foreign language (EFL) learners. These studies underscore the importance of active, student-centered approaches to language instruction, which align with the principles of IT integration advocated in the present study. Furthermore, Tranfield et al. provide insights into systematic review methodologies, highlighting the importance of evidence-informed management knowledge in educational research (Tranfield et al., 2003). This perspective underscores the need for rigorous research methodologies to inform decision-making processes and drive innovation in IT-integrated language learning practices. In the realm of technology-enhanced language learning, scholars such as Hubbard, Nesi, and Oxford offer critical insights into the best practices and challenges associated with computer-assisted language learning (CALL) (Hubbard, 2009; Nesi, 2004; Oxford, 2016). Their work underscores the dynamic nature of technology-mediated language instruction and the importance of effectively adapting pedagogical practices to leverage the affordances of digital tools.

Moreover, the discussion incorporates perspectives from scholars such as Hatzigianni, Rachayon & Soontornwipast, and Parmaxi, who explore the transformative potential of digital technologies, including virtual reality and digital games, in language learning contexts (Hatzigianni, 2018; Rachayon & Soontornwipast, 2019; Parmaxi, 2023). These studies offer valuable insights into innovative approaches to language instruction and underscore the need for continued exploration of emerging technologies in educational contexts. Additionally, the discussion incorporates literature on learner autonomy and digital literacy, drawing from the works of Yildiz & Yucedal, Watson, and Berge & Muilenburg (Yildiz & Yucedal, 2020; Watson, 2001; Berge & Muilenburg, 2013). These scholars emphasize the importance of empowering learners to take ownership of their learning process and develop critical digital literacy skills necessary for navigating the complexities of the digital age.

Overall, the discussion synthesizes findings from diverse disciplinary perspectives, including education, technology, and language learning, to comprehensively understand the theoretical frameworks and practical implications underpinning IT-integrated language learning initiatives. Drawing on insights from a wide range of literature, the discussion contributes to the ongoing dialogue surrounding effective pedagogical practices and innovative approaches to language education in the digital era.

This research has significant implications for enhancing the quality of learning and opening new opportunities in education. By utilizing information technology, this research presents creative solutions to improve students' understanding and engagement in learning English. Firstly, the tangible contribution of this research is evident in the enhancement of the learning quality at State Islamic College of Madina, North Sumatra. Through the use of innovative learning media, such as technology-based applications, students can access learning materials more interactively and profoundly. This not only enhances their understanding but also ignites interest and motivation in learning English. Furthermore, this research expands the accessibility of learning. With information technology, students are no longer bound by time or location in accessing learning materials, enabling them to study anytime and anywhere according to their needs and preferences. This opens doors for students with physical or geographical limitations to remain engaged in the learning process. Additionally, this research also has a positive impact on the professional development of educators. By introducing technology-based learning media, educators at at State Islamic College of Madina, North Sumatra are encouraged to update their skills in utilizing technology in the learning process, which in turn not only enriches students' learning experiences but also enhances the overall quality of teaching. Furthermore, this research empowers students to take an active role in their own learning. With easier access to alternative learning sources and interactive learning tools, students are encouraged to become more independent and proactive in developing their English language skills.

IV. CONCLUSION

In conclusion, the findings of this study

underscore the multifaceted nature of IT integration in language learning contexts and its implications for pedagogy, practice, and policy. Through a combination of quantitative survey data and qualitative insights gleaned from interviews and focus group discussions, this research has provided a comprehensive understanding of participants' perceptions, experiences, and challenges related to IT-integrated language learning at the State Islamic College of Madina in North Sumatra. The demographic analysis revealed a diverse participant profile, encompassing students, educators, and administrators across different age groups and geographic regions. This diversity underscores the importance of adopting inclusive and adaptable approaches to IT integration that cater to stakeholders' varying needs and preferences within the language learning ecosystem. Thematic analysis of qualitative data highlighted vital themes such as technological competence, pedagogical adaptation, and the benefits and challenges of IT integration. Educators emphasized the importance of seamlessly integrating IT tools into language learning curricula to enhance student engagement and facilitate meaningful learning experiences. On the other hand, students expressed appreciation for the convenience and flexibility of digital resources while also identifying technical issues and content authenticity concerns as areas for improvement.

The integration of quantitative and qualitative findings revealed complementary insights, enriching our understanding of the complexities surrounding IT integration in language learning environments. While quantitative data provided numerical insights into participants' perceptions, qualitative data offered more profound insights into the underlying reasons and contextual factors shaping these perceptions. The implications of this study extend to educators, administrators, and policymakers involved in IT-integrated language learning initiatives.

To provide more actionable suggestions, educators can benefit from investing in ongoing professional development focused on integrating IT tools effectively into language teaching methodologies. Administrators should prioritize improving the accessibility of IT resources by ensuring sufficient infrastructure and support systems are in place. Policymakers play a crucial role in fostering IT integration by advocating for the development of user-friendly interfaces that cater to diverse learning styles and preferences. Additionally, collaborative efforts among stakeholders are essential to address the challenges and seize the opportunities presented by IT integration.

Future research directions should include longitudinal studies to track the long-term impact of IT integration on language learning outcomes. Furthermore, conducting comparative studies across different educational contexts can elucidate the transferability of findings and inform best practices globally. This study contributes to the ongoing discourse on effective pedagogical practices and innovative approaches to language education in the digital era. By incorporating these specific recommendations and addressing the identified challenges, stakeholders can optimize the effectiveness and inclusivity of language learning methodologies, ultimately fostering transformative learning experiences for all learners.

Acknowledgment

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