# Optimizing ICT Integration for English Learning in Indonesian Islamic Boarding Schools

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*Abstract*—In the evolving landscape of digital education, the integration of Information and Communication Technology (ICT) into pedagogical practices has become essential, particularly in non formal educational settings such as Islamic boarding school (Pesantren) in Indonesia. Despite the increasing emphasis on digital literacy, limited research has explored the optimization of ICT within sociocultural pedagogical frameworks for English language learning in Islamic boarding school contexts. This study aims to examine the implementation and impact of ICT tools in supporting a sociocultural approach to English instruction at Islamic boarding school Nurul Amanah, Bangkalan. Employing a descriptive qualitative method, data were collected through semi structured interviews with English teachers, classroom observations, and documentation of ICT usage. The findings reveal that digital media such as PowerPoint presentations, educational videos, Google Forms, and social media platforms like TikTok are integrated to enhance student engagement, intelligibility, and participation in English language learning. Additionally, the use of a language laboratory with internet access supports students' independent exploration and project based learning. The study concludes that the strategic application of ICT significantly enriches the sociocultural teaching approach by fostering contextual understanding, learner motivation, and active participation. However, infrastructural limitations and restricted access to personal devices present ongoing challenges. This research contributes to the discourse on context sensitive digital pedagogy and highlights the need for further development of ICT-supported frameworks tailored to faith based and culturally embedded learning environments. Future research is encouraged to explore scalable ICT integration models that address infrastructure gaps and expand digital access across similar educational institutions in developing regions.

*Keywords*—Information and Communication Technology (ICT), Sociocultural Pedagogical Approach, Framework

## I. INTRODUCTION

Bangkalan, Madura is renowned as a religious city, home to numerous Islamic educational institutions, such as Islamic Boarding School. The development of Islamic boarding schools is not limited to providing religious education but also extends to areas like human resource development, communication, and especially the integration of digital technologies. In alignment with the era of Industrial Revolution 5.0, where connectivity and automation redefine educational practices, Islamic boarding school Nurul Amanah actively adopts Information and Communication Technology (ICT) tools to enrich English language learning [1]. These digital resources not only enhance students' exposure to global language usage but also allow for contextual and culturally grounded instructional delivery [2]. As a result, students are encouraged to utilize English in daily communication while engaging with interactive and technology-based learning environments [3]. As shown in Fig 1, Islamic boarding school Nurul Amanah provides a contextualized Islamic learning environment, which becomes the foundation for integrating modern ICT tools in English language instruction [4].



Fig. 1. English as a Foreign Language (EFL)

Teachers must possess strong pedagogical skills to teach English effectively to English as a Foreign Language (EFL) learners in Islamic boarding school, where sociocultural nuances are significant [5]. Implementing effective teaching principles is crucial to support students' English literacy [6]. One of the key principles is the sociocultural pedagogical approach, which aims to create a supportive environment that stimulates student interest and connects learning materials with their prior

knowledge. This approach encourages the use of engaging content, clear presentation, and active student participation [7].

Several studies have examined the application of sociocultural pedagogy in English education. Research by [8] and [9] revealed both the benefits and challenges of applying this method in English literature classes. Similarly, [9] and [10] found that integrating ICT in sociocultural teaching approaches enhanced student engagement and comprehension. Research by [11] also emphasized the importance of using innovative learning media such as instructional videos in English literacy instruction.

In Islamic boarding school contexts, the use of ICT in English language learning has shown promising results, despite challenges in infrastructure and access. Recent innovations include the development of elearning platforms, blended learning models, and mobile assisted tools tailored to Islamic education. The journal Babasal highlighted that some Islamic boarding school have prioritized ICT skills as part of English instruction. However, most existing research focuses on university settings or literature based instruction. This study aims to fill that gap by exploring how ICT can be optimized to support a sociocultural pedagogical approach at Islamic boarding school Nurul Amanah, Bangkalan. The findings are expected to enrich English teaching practices in Islamic boarding school based language programs, promoting inclusive, culturally responsive, and digitally integrated instruction.

## II. LITERATURE REVIEW

ICT in English language learning has advanced significantly in recent years. Digital platforms and mobile applications are increasingly utilized to support language instruction in both formal and informal settings. These technologies enhance student engagement and provide more interactive learning experiences, particularly in regions with limited educational resources [12]. In English classrooms, ICT allows learners to access multimedia content, participate in virtual activities, and collaborate with peers, promoting both autonomy and motivation [13].

At the same time, the sociocultural pedagogical approach has gained renewed attention as a model that emphasizes interaction, cultural relevance, and participation in learning [14]. This method aligns closely with language education, as it encourages students to construct knowledge within social contexts. The combination of ICT and sociocultural pedagogy creates a dynamic framework where digital tools are not only seen as technological aids but also as cultural instruments that mediate communication and meaning making among learners [15].

In Islamic boarding school, or Islamic boarding school, the adoption of ICT tools for English language learning remains a growing area of innovation. Although traditionally centered on classical religious education, many Islamic boarding school are now integrating technology to support general education subjects [16]. Teachers have begun to incorporate video presentations, design apps, and social media platforms to make English lessons more relevant and engaging. However, this

integration also faces barriers such as limited digital infrastructure and varying levels of technological readiness. Despite these challenges, Islamic boarding school continue to explore ways to harmonize modern tools with religious and cultural values [17], making ICT-supported sociocultural pedagogy a promising yet underexplored field [18].

## III. METHOD

This study employed a descriptive qualitative research design to explore the implementation of ICT within the sociocultural pedagogical framework in English language learning at Islamic boarding school Nurul Amanah, Bangkalan. The research focused on how ICT tools are adapted to support culturally grounded instruction, particularly through the principles of engagement, intelligibility, and participation [19].

### A. Research Framework

The conceptual framework of this study integrates Sociocultural Pedagogical Theory with ICT-Supported Instructional Design, as illustrated in Fig 2.
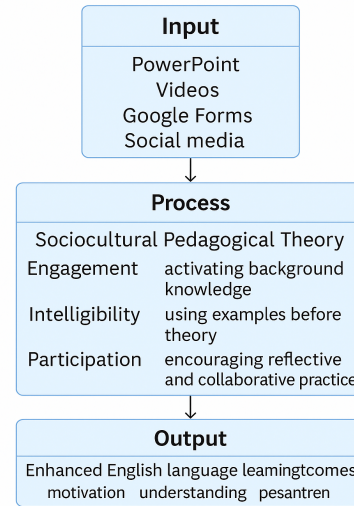


Fig. 2. Conceptual Fremework

Fig 2 illustrates the conceptual framework applied in this study, which combines Sociocultural Pedagogical Theory with ICT-Supported Instructional Design [20]. The framework begins with the input phase, consisting of digital learning tools such as PowerPoint presentations, videos, Google Forms, and social media platforms [21]. In the process phase, these tools are utilized through three main principles of sociocultural pedagogy. Engagement focuses on activating students' background knowledge. Intelligibility emphasizes the use of concrete examples before introducing theoretical content [22]. Participation encourages reflective and collaborative learning practices. The output highlights the intended outcomes, including increased motivation, improved understanding, and active participation in English language learning within the Islamic boarding school setting. This framework provides the foundation for aligning theoretical concepts with field observations throughout the research [23].

### B. Data Collection

The data were collected through three main techniques:

- Semi structured interviews with three English teachers two from the Islamic boarding school's language program and one from the Islamic high school division. Ten open-ended questions were developed to explore teachers experiences, strategies, and challenges in using ICT within sociocultural teaching methods.
- Classroom observations during English lessons conducted from September to October 2024. These allowed the researcher to examine real time interaction between teachers, students, and ICT tools.
- Documentation analysis of teaching materials, media, and lesson plans, to triangulate findings from interviews and observations.

### C. Data Analysis

This study employed [24] interactive model consisting of:

- Data condensation is coding and categorizing interview transcripts and observation notes based on recurring themes.
- Data display organizing data into matrices and tables, categorized by the three pedagogical principles.
- Conclusion drawing and verificationis interpreting patterns and validating them through triangulation and member checking.

### D. Trustworthiness and Validation

To ensure the credibility and rigor of findings:

- Triangulation was applied by cross-checking data from interviews, observations, and documents.
- Member checking was conducted by presenting key interpretations to participants for confirmation.
- Manual coding allowed emerging themes to be derived inductively, reducing researcher bias and increasing analytical transparency.

This methodological approach ensures that the study's findings authentically represent the integration of ICT within a culturally embedded educational context, offering insights into how traditional Islamic education systems can embrace digital transformation without compromising their core values [25].

## IV. RESULTS AND DISCUSSION

### A. The Language Class at Islamic boarding school Nurul Amanah, Bangkalan

Prior to presenting the findings, data collected through interviews and observations were analyzed thematically. Using an inductive coding approach, recurrent ideas were categorized into themes that reflect the three core principles of the sociocultural pedagogical framework, namely engagement, intelligibility, and participation [26]. These themes were validated across multiple data sources to ensure consistency and relevance to the research focus. The interaction captured in Fig 3 illustrates how ICT integration contributes to a dynamic and interactive English language learning environment at Islamic

boarding school Nurul Amanah [27]. The curriculum includes various text genres, such as procedural and recount texts, which are taught in a contextually grounded and culturally sensitive manner [28]. The incorporation of ICT-based tools, such as instructional videos and digital simulations, plays a key role in making these genres more tangible and relatable. Digital platforms enable students to explore language usage in authentic scenarios, bridging the gap between traditional religious values and modern educational delivery systems.



Fig. 3. The atmosphere of the English class at Islamic boarding school Nura

During the initial three years, students focus on Quranic reading and writing. In the first year, students are required to memorize 700 Arabic vocabulary words [22]. In the second year, Arabic grammar is introduced through accessible methods, including the memorization of traditional texts such as "Nahdom Al Miftah", along with an expanded vocabulary of 800 words. By the third year, the goal increases to 1,000 words. Instruction and guidance throughout these stages are provided by trained Islamic educators. Peer learning also plays a significant role. The 'Master Class' program, implemented in the fifth year, involves senior students who have completed earlier stages serving as mentors for first year students. This mentoring system supports knowledge transfer and reinforces the sociocultural emphasis on collaborative learning [29].
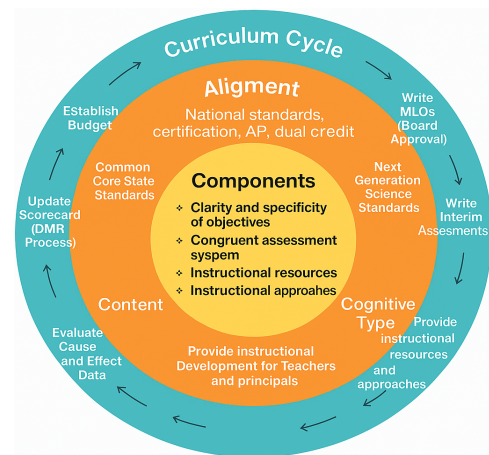


Fig. 4. The implementation of the masterclass program

English language instruction is formally integrated into the fourth year of study through the "Smart Meeting" program, which is conducted on a weekly basis [30]. In the fifth year,

students proficient in English are assigned as peer mentors to assist language instruction, while others are trained for administrative or teaching responsibilities. The sixth year focuses on preparing students for the National Examination and transition to higher education [31]. Students at this level are expected to independently develop speech materials in English, often adapting lessons from Islamic subjects such as ethics, Ta'lim Muta'allim, and Hadith [32]. Occasionally, the curriculum incorporates contemporary issues relevant to students' lives, including topics such as juvenile delinquency, bullying, and technological developments like artificial intelligence, which are addressed from an Islamic perspective and presented in English [33]. The structure and flow of this progressive learning program are illustrated in Fig 4, which depicts the curriculum cycle and its core instructional components.

The English language activities closely mirror those of the Arabic language program, emphasizing grammar, vocabulary development, and spoken fluency [34]. Through Smart Meetings, students engage in English based da'wah and speech practices that foster not only linguistic skills but also confidence in public speaking and contextual communication [35]. This structured, progressive, and culturally grounded model exemplifies the integration of faith based education with language development supported by sociocultural and digital pedagogical strategies [36].

## V. Optimizing ICT in English Language Learning Using the Sociocultural Pedagogical Method in the Nurul Amanah Islamic boarding school

The following outlines the implementation of the sociocultural pedagogical method in English language learning, both in the dormitory and the school environment at Islamic boarding school Nurul Amanah, as well as how ICT can support the optimization of this method. To illustrate how ICT supports the sociocultural pedagogical method, Table I summarizes its integration across three main principles isengagement, intelligibility, and participation. Each principle is enhanced through relevant ICT tools that align with students' social and cultural contexts.

TABLE I
SUMMARY OF ICT-SUPPORTED SOCIOCULTURAL LEARNING PRINCIPLES

| No | Principle | ICT Integration Example | Learning Outcome Highlight |
|---|---|---|---|
| 1 | Engagement | Videos, Google Forms, Ice breaking activities | Increased motivation, background based teaching |
| 2 | Intelligibility | PowerPoint, real life examples, instructional videos | Better understanding of abstract concepts via examples |
| 3 | Participation | Conversation practice, reflection activities, social media use | Active involvement in class, performance appreciation |

As shown in Table I, the integration of ICT with the sociocultural pedagogical approach reinforces students' engagement, understanding, and active participation. This alignment between digital tools and cultural context plays a critical role in optimizing English language learning at Islamic boarding school Nurul Amanah.

### A. Principle of Engagement (Initial Learning Principle)

As an initial phase in the learning process, the principle of engagement within the sociocultural pedagogical framework emphasizes the importance of activating students' prior knowledge. By connecting new material with existing cognitive structures, students are better prepared to engage with the subject matter and feel more confident in their ability to learn. This strategy is particularly important in English language instruction, where background familiarity with a topic can significantly enhance comprehension and motivation.

In the Islamic boarding school setting, this principle is implemented through structured introductory activities. Lessons typically begin with prayer and motivational messages, followed by warm up tasks designed to build enthusiasm. Teachers often incorporate ice breaking exercises, short quizzes, or brief question based interactions to foster student readiness. The use of videos further enriches the atmosphere by providing stimulating content that models perseverance and achievement. These visual aids play a key role in cultivating a positive mindset toward language learning, especially in environments where English is not commonly used.

The Islamic boarding school also integrates technology to strengthen engagement strategies. One such method involves the use of digital forms to collect students' background information and learning expectations. Insights gained from these forms enable instructors to tailor instruction to the students' interests, cultural context, and educational needs. Understanding learners' personal and family backgrounds has proven beneficial in aligning language instruction with student motivation and goals. Many participants in the English program come from families that place a high value on education, which further supports their sustained involvement. Through a combination of culturally sensitive content, motivational techniques, and data informed planning, the principle of engagement is effectively embedded in the English language program. This foundation fosters student interest, strengthens classroom participation, and creates a supportive environment for language acquisition.

### B. Challenges in Optimizing Information and Communication Technology

The integration of ICT within the sociocultural pedagogical approach in Islamic boarding school presents several challenges, primarily related to the limitations of infrastructure and access to digital media. Due to the restricted availability of devices such as computers and projectors, educators are required to implement structured scheduling systems to ensure that available ICT resources are distributed and utilized efficiently during instructional activities.These infrastructural constraints highlight the pressing need for sustainable digital infrastructure development in Islamic boarding school, includ-

ing investments in network connectivity, device procurement, and ICT literacy training for both students and educators.

In the Islamic boarding school setting, the use of mobile phones is generally prohibited, particularly for students residing in dormitories. As a result, these students depend entirely on the computer laboratory for accessing online learning resources. The laboratory is equipped with internet connected devices, which are shared among students in order to accommodate their learning needs. Meanwhile, students who live outside the dormitory are granted more flexibility in using personal gadgets to support their independent learning. This differentiated access system requires careful management to ensure equity and effectiveness in the use of digital tools.

Despite the advantages of applying a sociocultural pedagogical approach, its implementation faces barriers related to limited ICT facilities and the contextualization of teaching materials. Addressing these challenges requires adaptive strategies, such as the development of bilingual textbooks that combine English content with religious values, and the flexible scheduling of ICT resources according to classroom needs. Allowing selective use of the computer laboratory further enhances students' access to digital materials, especially for those who are otherwise restricted from using mobile devices. These adjustments contribute to a more inclusive and optimized learning environment within the Islamic boarding school.

The findings of this study are supported by patterns observed consistently across various data sources, including classroom practices and document reviews. The recurring use of digital platforms such as TikTok in classroom activities highlights how ICT can enhance student participation. These insights affirm that, when effectively managed, ICT can be integrated into a sociocultural pedagogical framework in a way that aligns with the values and infrastructure of Islamic boarding school based education.

### C. The Sociocultural Pedagogical Approach in English Language Learning at Islamic boarding school

This study offers an original contribution by demonstrating how ICT tools, typically used in modern digital learning, can be effectively adapted to a traditional Islamic boarding school environment. Integrating videos, social media, and digital forms into a sociocultural pedagogical framework introduces a novel approach to English language instruction in religious schools.

Student engagement plays a vital role in stimulating interest in learning. At Islamic boarding school Nurul Amanah, lessons often begin with topics rooted in students' daily lives and religious values, such as speeches using English vocabulary to convey Islamic teachings. This contextualization enhances comprehension and relevance. Clarity is emphasized through visualization techniques like images and videos, along with concrete examples from students' experiences, making abstract English concepts easier to grasp. Meanwhile, active participation is fostered through conversational practice, vocabulary drilling, translation, and written assessments. These activities help develop students' critical thinking and communication skills.

Project based learning further supports the participation principle. Students are encouraged to produce conversation videos and deliver English speeches about Islamic figures, strengthening both language proficiency and religious knowledge. As institutions rooted in religious values, Islamic boarding school have integrated English into their broader educational mission. Teachers adapt the English curriculum to align with Islamic teachings by incorporating materials based on akhlak (Morality), ta'lim muta'allim (Learning Etiquette), and hadith, ensuring contextual relevance.

The sociocultural pedagogical approach presents several advantages. It enables integration of religious and language education, maintains students' Islamic identity, promotes meaningful learning, and increases motivation by connecting lessons to real life contexts. This approach provides an effective and culturally respectful solution for English instruction in Islamic boarding school. These findings suggest opportunities for further research, particularly on scaling ICT integration across Islamic boarding school with diverse infrastructural conditions. Future studies could explore low cost technologies, offline digital tools, or community based ICT sharing models. Investigating teacher training and policy frameworks supporting digital education in Islamic settings may offer insights for broader implementation. Government and institutional support are crucial to ensure equitable ICT access, especially in underserved regions. Ultimately, this research bridges sociocultural pedagogical theory with practical ICT use such as videos, online platforms, and social media in a religious education setting. It highlights how technology can enhance English language learning without compromising the cultural and religious foundations of Islamic boarding school.

### D. Optimization of Information and Communication Technology (ICT) in English Language Learning at Islamic boarding school

In the context of education at Islamic boarding school, ICT is used as a tool to facilitate learning through the use of devices such as laptops, computers, internet access for accessing learning materials, projectors, digital media, and online learning applications. From this, the role of ICT in English language learning becomes very significant, especially in the digital era where access to information is faster and more widespread. ICT in English language learning at Islamic boarding school not only facilitates access to digital resources such as educational videos and other interactive materials that accelerate the learning process and enhance English language skills, but also boosts the motivation of students and makes it easier to integrate the learning materials with Islamic values. However, the Islamic boarding school's policy limiting students from bringing devices such as mobile phones to maintain discipline and prevent potential distractions creates a challenge in utilizing technology for learning, as mobile phones and devices are primary tools for accessing ICT based learning materials. Therefore, alternative solutions, such as

the use of computers and language laboratories with internet access, are implemented. In these laboratories, students can access computers connected to the internet to open learning resources such as tutorial videos, interactive exercises, or English language learning applications available on PCs. The use of language laboratories also provides an opportunity for students to practice listening and speaking in English in a structured way using the software provided. In addition, offline digital learning media has become one of the solutions implemented in the Islamic boarding school. To utilize ICT without mobile devices, the Islamic boarding school provides learning videos or interactive modules that are projected via a projector or large screen in the classroom. In this way, students can engage in interactive English lessons even without using gadgets.

## VI. CONCLUSION

The integration of ICT within the sociocultural pedagogical framework in Islamic boarding school Nurul Amanah represents a significant step toward modernizing English language instruction without compromising the religious and cultural values of the Islamic boarding school. By combining digital tools such as videos, PowerPoint presentations, Google Forms, and social media platforms with traditional Islamic educational practices, the Islamic boarding school successfully fosters an engaging, intelligible, and participatory learning environment. This approach aligns with the three core principles of the sociocultural pedagogy engagement, clarity (Intelligibility), and participation each of which is enhanced through carefully selected ICT applications to suit students' social backgrounds and cognitive needs.

In practice, the engagement principle is implemented through motivational introductions using videos and ice breaking activities, supported by student background data collected via digital forms. The intelligibility principle is reinforced by visual aids and contextual examples that connect new language content with students' lived experiences. The participation principle encourages active student involvement through collaborative tasks, English speech practice, and project based learning, with outputs often shared through social media to enhance appreciation and motivation. These activities are facilitated by access to language laboratories, allowing students especially those without personal digital devices to participate equitably in ICT-supported learning.

Despite the pedagogical strengths demonstrated, the study also highlights infrastructural and policy related challenges. Limited access to digital devices, restricted gadget usage within dormitories, and unequal resource distribution remain ongoing barriers. Nevertheless, adaptive strategies such as the use of offline digital tools, structured lab schedules, and culturally contextualized materials have proven effective in bridging these gaps. Overall, this research not only contributes to the discourse on digital education in Islamic learning environments but also offers a replicable model for integrating ICT into socioculturally sensitive English language programs in other Islamic boarding school or similar institutions. Future

studies are encouraged to explore scalable frameworks and institutional support systems that enable broader and more inclusive ICT adoption in religious education contexts. This study not only affirms the value of sociocultural approaches in Islamic education but also emphasizes the critical importance of ICT as a bridge between traditional pedagogy and the demands of digital literacy. As Islamic boarding school navigate the balance between preservation of religious heritage and the imperative of technological fluency, ICT emerges as a catalyst for transforming language education into a more inclusive, participatory, and future ready experience.

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