

## THE IMPACT OF TECHNOLOGY ON ISLAMIC PESANTREN EDUCATION AND THE LEARNING OUTCOMES OF SANTRI: NEW TRENDS AND POSSIBILITIES

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### Abstract

This paper explores the impact of technology on Islamic pesantren education and the learning outcomes of santri. The study highlights the emergence of new trends and possibilities in the integration of technology in pesantren education, including the use of online learning platforms, mobile applications, and social media. The paper also examines the potential benefits of technology in enhancing the pesantren education system, such as improved access to educational resources, enhanced communication, and new learning opportunities. Studies in this area typically use quantitative and qualitative research methods. Quantitative methods may include surveys and questionnaires to gather data on the use and impact of technology on pesantren education and student learning outcomes. Qualitative methods may include interviews and focus groups with pesantren educators, administrators, and students to better understand their experiences with technology in education. Quantitative data analysis often involves using statistical software to analyze survey or questionnaire data, such as calculating mean scores and standard deviations and conducting inferential statistics. Qualitative data analysis may involve content or thematic analysis techniques to identify patterns or themes in the data gathered from interviews or focus groups. Finally, the paper discusses the importance of integrating technology into Islamic pesantren education and the need for pesantren institutions to keep pace with technological advancements to prepare their students for the demands of the 21st-century workforce.

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## **INTRODUCTION**

Islamic pesantren, or traditional Islamic boarding schools, have been a fundamental institution of Islamic education in many Muslim countries for centuries (Hefner, 2009). The pesantren curriculum centers on Islamic teachings and values but also covers other subjects such as the Arabic language, history, and philosophy (Abdullah, 2011). Technology has become an increasingly essential part of modern education in recent years, and pesantren education is no exception (Almaamun et al., 2021). The integration of technology in pesantren education has helped modernize the traditional Islamic education system and has become increasingly crucial for the education system in Muslim countries (Rana et al., 2021). Technology provides access to a wealth of information that would have been challenging to obtain otherwise (Kurniawan & Arifin, 2020). It has also helped improve teaching and learning by providing interactive and engaging learning experiences.

Moreover, technology has broadened the scope of the pesantren curriculum, allowing for more specialized courses and electives (Ginting, 2021). Santri can now learn about topics that were not traditionally covered in pesantren education, such as science and technology, entrepreneurship, and communication skills (Hasan, 2021). The integration of technology in pesantren education has opened up new opportunities for santri to prepare for the challenges of the modern world and compete in the global job market (Al-Hawamdeh et al., 2020).

However, the integration of technology in pesantren education also presents challenges that need to be addressed. One of the primary challenges is ensuring that the technology is used in a way that aligns with Islamic values and principles (Azam et al., 2021). Another challenge is ensuring that santri has access to technology and is used effectively to enhance learning outcomes (Ginting, 2021). Nonetheless, the opportunities presented by technology are vast, and if properly harnessed, it can help revolutionize pesantren education and improve the quality of learning outcomes (Almaamun et al., 2021). This essay will explore the impact of technology on Islamic pesantren education and how it has affected the learning outcomes of santri, considering the challenges and opportunities presented by technology presentation.

This article explored the impact of technology on Islamic pesantren education and how it has affected the learning outcomes of santri. The integration of technology has been shown to have positive effects on education in general (Bacca et al., 2014; Kurniawan & Arifin, 2020), and there is growing evidence that it can also benefit pesantren education (Almaamun et al., 2021; Hasan, 2021; Rana et al., 2021). However, there are also potential drawbacks and challenges associated with the integration of technology in pesantren education, including the need to ensure that the technology aligns with Islamic values and principles (Azam et al., 2021; Ginting, 2021) and that it

is used effectively to enhance learning outcomes (Al-Hawamdeh et al., 2020; Almaamun et al., 2021).

## **RESEARCH METHOD**

This study aimed to explore the impact of technology on Islamic pesantren education and its effect on the learning outcomes of santri. To achieve this aim, a mixed-methods research design will be employed. This section will describe the research design, sample population, and data collection methods, as well as the ethical considerations and limitations of the study. A mixed-methods research design will be employed in this study. The study will begin with a quantitative survey to gather data on the extent of technology integration in pesantren education and its impact on santri learning outcomes. Qualitative interviews with teachers and students will follow this to gain deeper insights into the challenges and benefits of integrating technology in pesantren education.

The sample population consisted of pesantren students and teachers in Indonesia. The quantitative survey was administered to a representative sample of pesantren students using a self-administered questionnaire. The questionnaire gathered information on the extent of technology integration in pesantren education, the types of technology used, and its impact on students' learning outcomes. The qualitative interviews were conducted with a purposive sample of pesantren teachers and students who have experience with technology integration in pesantren education. The interviews were conducted in person or online and will be audio-recorded with consent from the participants. This study adhered to ethical principles, including informed consent, confidentiality, and anonymity. Participants provided with written consent forms before participating in the study will be informed of the study's purpose, their right to withdraw from the study at any time, and the confidentiality of their responses. Any personal identifying information will be kept confidential and not shared with anyone outside the research team. The study also adhered to the ethical guidelines of the American Psychological Association (APA).

This study has several limitations that should be considered when interpreting the results. Firstly, the study will only focus on pesantren education in Indonesia, and the findings may need to be more generalizable to other Islamic educational institutions in different contexts. Secondly, the sample size may be limited, affecting the findings' generalizability. Lastly, there may be a bias in self-reported data gathered through the questionnaire. Despite these limitations, this study contributed to the growing body of research on the impact of technology on Islamic pesantren education and its effect on the learning outcomes of santri. This study will employ a mixed-methods research design to explore the impact of technology on Islamic pesantren education and its effect on the learning outcomes of santri. The sample population will consist of pesantren students and teachers in Indonesia, and data will be collected through a quantitative survey and qualitative interviews. The study adhered to ethical

principles and guidelines, and the limitations of the study will be considered when interpreting the results.

## RESULT AND DISCUSSION

This study aimed to examine the impact of technology on Islamic pesantren education and the learning outcomes of santri in Indonesia. The study employed a mixed-methods research design, consisting of a quantitative survey and qualitative interviews with pesantren teachers and students. The quantitative survey results showed that technology integration in pesantren education still needs to be improved. Out of 200 student participants, only 47% reported that their pesantren use technology in teaching and learning activities. The most commonly used technology was smartphones (75%), followed by laptops (58%) and projectors (24%). The table below summarizes the results of the survey.

**Table 1: Use of Technology in Pesantren Education**

Technology	Percentage of students using technology
Smartphone	75%
Laptop	58%
Projector	24%

**Source: Data Processing, 2023**

Despite the limited integration of technology, the students who reported using technology in pesantren education generally had positive perceptions of its impact on their learning outcomes. Of the 94 students who reported using technology in pesantren education, 63% reported that technology had improved their academic performance, while 37% reported no impact.

The qualitative interviews with pesantren teachers and students revealed both benefits and challenges of technology integration in pesantren education. The benefits included increased motivation and engagement, improved access to information, and enhanced teaching and learning experiences. However, the challenges included the lack of infrastructure and resources, resistance to change among traditionalists, and the potential negative impact of technology on the religious and moral values of santri. The table below summarizes the themes that emerged from the qualitative interviews.

**Table 2: Themes from Qualitative Interviews on Technology Integration in Pesantren Education**

Themes	Description
Benefits of technology integration	Increased motivation and engagement, improved access to information, enhanced teaching and learning experiences

Themes	Description
Challenges of technology integration	Lack of infrastructure and resources, resistance to change among traditionalists, potential negative impact on religious and moral values
Strategies to overcome challenges of technology integration	Increase availability of infrastructure and resources, provide training and support for teachers, engage traditionalists in the process of technology integration, and ensure technology use aligns with Islamic values and ethics
Factors that influence the use of technology in pesantren	Teachers' attitudes and beliefs, students' socioeconomic background, availability of resources
Students' preferences for technology use in pesantren	Smartphones for communication and research, laptops for typing and creating presentations, projectors for group discussions and presentations
Potential adverse effects of technology use on religious and moral values	Reduced face-to-face interaction and social skills, exposure to inappropriate content

**Source: Data Processing, 2023**

The findings of this study suggest that technology integration positively impacts the learning outcomes of santri in pesantren education, particularly in terms of increased motivation and engagement. However, the limited integration of technology and the challenges of technology integration in pesantren education must be addressed to maximize its benefits. The findings also suggest that traditionalists' resistance to change is a significant barrier to technology integration in pesantren education. Therefore, strategies must be developed to engage traditionalists in the process of technology integration and ensure that technology use aligns with Islamic values and ethics.

In conclusion, this study has shown that integrating technology in Islamic pesantren education can enhance the learning outcomes of Santri. The descriptive analysis revealed that technology integration in pesantren education is still limited, with the most commonly used technology being smartphones, laptops, and projectors. However, the qualitative analysis showed that technology integration had benefits and challenges in pesantren education. The benefits of technology integration included increased motivation and engagement, improved access to information, and enhanced teaching and learning experiences. On the other hand, the challenges included the lack of infrastructure and resources, resistance to change among traditionalists, and the potential negative impact of technology on the religious and moral values of santri.

The findings of this study suggest that technology integration can positively impact students' learning outcomes in pesantren education. However, its limited integration and technology integration challenges must be addressed to maximize its

benefits. The teachers and students suggested several strategies to overcome these challenges, including increasing the availability of infrastructure and resources, providing training and support for teachers, engaging traditionalists in the technology integration process, and ensuring that technology use aligns with Islamic values and ethics. Therefore, it is essential to consider the perspectives of all stakeholders involved in pesantren education when implementing technology integration. By doing so, we can ensure that technology integration in pesantren education is sustainable, culturally sensitive, and aligned with Islamic values and ethics. This study's findings contribute to the growing body of research on the impact of technology on Islamic pesantren education and can inform future research and policy development in this field.

In addition, the results of this study provide valuable insights into the impact of technology on Islamic pesantren education and the learning outcomes of santri. The findings indicate that technology integration positively impacts students' academic performance and motivation, but the limited integration of technology and resistance to change among traditionalists pose significant challenges to its implementation. These results highlight the need for pesantren administrators and policymakers to prioritize technology integration and provide the necessary resources and support for its implementation. The findings also suggest the need to ensure that technology use aligns with Islamic values and ethics to address concerns about the potential negative impact of technology on the religious and moral values of santri. This requires a collaborative effort between administrators, teachers, traditionalists, and students to develop guidelines and principles for responsible and ethical technology use in pesantren education.

### **Limitations and future research**

1. One of the limitations of this study is the small sample size, which may limit the generalizability of the findings. Future research should include a larger and more diverse sample to ensure the results represent the broader population of Islamic pesantren students and teachers.
2. Another study limitation is the focus on using technology in teaching and learning activities. Future research could explore the potential of technology in other areas of pesantren education, such as administrative and management tasks, to provide a more comprehensive understanding of the opportunities and challenges presented by technology in pesantren education.

### **Opportunities and challenges presented by technology in pesantren education**

The findings of this study suggest that technology integration has the potential to enhance the teaching and learning experiences of santri and improve their academic performance. Technology can also provide opportunities for access to information, collaboration, and communication, which is essential for preparing students for the

digital age. However, technology integration in pesantren education also presents significant challenges, such as the need for more infrastructure and resources, resistance to change among traditionalists, and concerns about the potential negative impact of technology on the religious and moral values of santri. These challenges require careful consideration and planning to ensure that technology use aligns with Islamic values and ethics and maximizes its benefits while minimizing its potential negative impact.

## **CONCLUSION**

In conclusion, this study provides valuable insights into the impact of technology on Islamic pesantren education and its effect on the learning outcomes of santri. The findings suggest that technology integration positively impacts students' academic performance and motivation. However, its limited integration and technology integration challenges must be addressed to maximize its benefits. Future research should focus on addressing the limitations of this study and exploring the potential of technology in other areas of pesantren education. In conclusion, technology has significantly impacted Islamic pesantren education and the learning outcomes of santri. Technology integration has allowed for improved access to educational resources, enhanced communication between pesantren institutions and their stakeholders, and facilitated the creation of new learning opportunities. The potential for technology to further enhance the pesantren education system is vast. With continued investment and technology implementation, pesantren institutions can leverage emerging technologies such as artificial intelligence and virtual reality to create more engaging and interactive learning experiences for their students. Recognizing the importance of integrating technology into Islamic pesantren education is essential. With the rapid pace of technological innovation, pesantren institutions must keep pace with these advancements to ensure their students are prepared for the demands of the 21st-century workforce. By embracing technology, pesantren institutions can create a more dynamic and inclusive educational environment, ultimately leading to improved student learning outcomes.

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