The Effect of the PesantrenKU Application on Santri Independence in Online Learning

Yusuf Iskandar[1], Heliani[2], Ujang Badru Jaman[3] (10 pt bold)
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Article Info

ABSTRACT

This study investigates the effect of the PesantrenKU application on the independence of santri (students) in online learning within Indonesia. Utilizing a quantitative analysis approach, data was collected from 100 santri using structured questionnaires. The collected data was then analyzed using SPSS version 25. The findings indicate that the use of the PesantrenKU application significantly enhances santri independence in their online learning activities. The results show significant positive relationships between PesantrenKU application usage and three dimensions of learning independence: self-regulation, self-motivation, and self-directed learning. These results suggest that integrating digital tools like PesantrenKU can play a crucial role in promoting independent learning in Islamic boarding schools, ultimately contributing to broader educational objectives in the region.

Corresponding Author:

Name: Dr. Yusuf Iskandar, S.Si., M.M
Institution: The Westscience Press Grand Slipi Tower, level 42 Unit G-H Jl. S Parman Kav 22-24, RT. 01 RW. 04 Kel. Palmerah Kec. Palmerah Jakarta Barat 11480
Email: yusuf.iskandar@westscience-press.com

1. INTRODUCTION

The integration of digital tools in education in Indonesia, particularly in Islamic boarding schools like Al-Ittifaqiah and Imam Ibnu Katsir, has been a significant trend driven by the need to enhance learning effectiveness [1]–[3]. The utilization of technology, such as IoT training and digital literacy programs, has aimed to improve students' cognitive abilities and prepare them for the digital era [2], [3]. Additionally, the concept of e-learning has emerged as a result of technological advancements, making learning more efficient and effective, ultimately improving the quality of education in primary schools [1]. However, challenges like responsible technology use and maintaining traditional values persist,

highlighting the importance of incorporating national values like Pancasila to guide digital education and strengthen students' characters [4]. The PesantrenKU application, designed to support santri in pesantren, aligns with this trend by providing a structured and interactive online learning environment to enhance students' independence and facilitate their education in the digital age.

The traditional pesantren education system in Indonesia faces challenges in adapting to online learning during the COVID-19 pandemic [5]. Pesantren schools have historically focused on religious studies and communal living, posing unique obstacles to the shift to remote teaching [6]. While some pesantren have integrated formal education, they often prioritize Islamic teachings, leading to tensions with the

national curriculum [6]. Technology utilization in pesantren remains limited, with a focus on media-based content due to resource constraints [7]. To address these challenges, the PesantrenKU application emerges as an innovative solution, offering a platform that integrates educational resources, interactive modules, and communication tools to support online learning for pesantren students [5]. This digital tool aligns with efforts to modernize pesantren education while preserving its traditional values and religious identity [6].

Independence in learning plays a pivotal role in educational advancement, enabling students to autonomously navigate their learning journey, enhance critical thinking abilities, and adapt to diverse learning settings. Research findings indicate that implementing blended learning with the Science Technology Society (STS) approach significantly boosts student independence in higher education [8]. Moreover, the independent learning curriculum at SMP Sta. Theresia demonstrates a positive impact on student achievement by fostering a mindset shift among teachers and students, emphasizing competence implementation and personalized learning modules [9]. Additionally, a study on student learning independence post-Covid-19 highlights the positive effects of self-efficacy, motivation, and environment on independent learning, leading to improved learning outcomes and critical thinking skills [10]. Furthermore, the development of a Self-Directed Learning model based on independence proves effective in enhancing higher-order thinking skills among vocational school students, showcasing a significant improvement in critical thinking and problem-solving abilities [11]. Emphasizing the importance of character development and educational reform, the concept of freedom to learn aligns with the goal of fostering independence in education, aiming to bring positive changes and benefits to the learning environment [12]. The PesantrenKU application, with its focus on self-directed learning and interactive engagement, holds great promise in

significantly impacting santri independence by providing a platform for personalized and independent learning experiences.

This study aims to examine the effect of the PesantrenKU application on the independence of santri in online learning within Indonesia. By employing a quantitative analysis approach, this research seeks to provide empirical evidence on the efficacy of the application in promoting independent learning among pesantren students.

2. LITERATURE REVIEW

2.1. Digital Learning in Islamic Education

The integration of digital learning tools in Islamic education has indeed become a global trend, aligning with the evolving educational landscape and technological advancements [13]–[17]. By incorporating digital tools like Google Forms, Kahoot!, YouTube, and TikTok, educators can enhance the learning experience of santri in pesantren by providing interactive and multimedia content that complements traditional teaching methods, thereby enriching the educational experience and increasing student engagement [13]–[15]. These tools not only offer increased accessibility to educational resources but also contribute to improved learning outcomes, motivating students and fostering critical thinking skills in the digital era [13], [14], [17]. The utilization of digital learning tools in Islamic education presents unique opportunities to create a more comprehensive and engaging educational environment that caters to the needs of modern learners.

2.2. Online Learning and Student Independence

Research has consistently highlighted the importance of fostering student independence in online learning environments [8], [18]–[21]. Studies have shown that online learning can enhance students' self-regulated learning skills, online learning self-efficacy, and overall satisfaction, leading to high levels of motivation and concentration among students [18], [19].

Furthermore, the implementation of blended learning approaches, such as the Science Technology Society (STS) method, has been found to significantly increase students' independence in higher education settings, emphasizing the effectiveness of integrating innovative teaching strategies to empower learners [8]. Additionally, the transition to online learning during the COVID-19 pandemic has underscored the importance of student independence, with research indicating moderate levels of independence among students in adapting to online learning environments, highlighting the need for supportive policies and conducive learning environments to nurture students' autonomy and self-directed learning skills [21].

2.3. The Role of Educational Applications in Enhancing Learning Independence

Educational applications have become essential in promoting learning independence by offering interactive modules, instant feedback, and progress tracking features, as highlighted in [22]. These tools have been shown to enhance student motivation, engagement, and academic performance, aligning with the findings in [23]. The integration of such applications in educational settings not only combats student boredom but also fosters increased student participation, ultimately leading to improved academic outcomes. Moreover, the utilization of web applications in higher education has been instrumental in providing supplementary resources for students, enhancing their learning experience and addressing challenges like remote learning and limited educational materials, as discussed in [24]. By leveraging these technological advancements, educational institutions can empower students to engage in self-directed learning and stay abreast of cutting-edge advancements, ultimately revolutionizing traditional educational methodologies [25].

2.4. PesantrenKU Application: Features and Impact

The PesantrenKU application, tailored for santri in pesantren, aims to bolster their independence through interactive lessons, quizzes, progress monitoring, and communication tools, fostering a structured yet adaptable learning environment that promotes self-directed learning [26], [27]. Similar educational applications have demonstrated positive outcomes in terms of student autonomy and academic performance, emphasizing the significance of such tools in enhancing the educational experience and empowering learners [26], [28]. By offering features that encourage responsibility and self-reliance in learning, the PesantrenKU application aligns with the evolving needs of pesantren education to adapt to modern technological advancements while maintaining its core values and objectives [27].

2.5. Previous Studies on Digital Tools in Pesantren Education

Research on digital tools in pesantren education has shown promising outcomes. Studies have explored the impact of digital platforms on student engagement and performance, revealing significant enhancements in motivation and academic outcomes [29]. Additionally, the use of mobile learning applications in pesantren has been investigated, emphasizing their potential to enhance access to educational resources and support independent learning [30]. These findings underscore the importance of integrating digital tools into traditional educational settings like pesantren, showcasing how technology can positively influence student learning experiences and outcomes, ultimately contributing to a more dynamic and effective educational environment.

Despite the growing body of research on digital learning tools in Islamic education, there is limited empirical evidence on the specific impact of the PesantrenKU application on santri independence in online learning. This study aims to fill this gap by providing quantitative evidence on the effectiveness of the PesantrenKU application in promoting independent learning among santri.

3. METHODS

3.1. Research Design

This study employs a quantitative research design to examine the effect of the PesantrenKU application on the independence of santri in online learning. A survey method was used to collect data from 100 santri in various pesantren across Indonesia. The use of a quantitative approach allows for the systematic collection and analysis of numerical data to test the formulated hypotheses and draw conclusions about the relationship between the use of the PesantrenKU application and santri independence.

3.2. Population and Sample

The population for this study consists of santri from various pesantren in Indonesia who have been using the PesantrenKU application for their online learning activities. A sample of 100 santri was selected using a simple random sampling technique to ensure that every member of the population had an equal chance of being included in the study. This sampling method enhances the representativeness and generalizability of the findings to the broader population of pesantren students.

3.3. Data Collection

Data was collected using a structured questionnaire designed to measure the level of independence in online learning among santri. The questionnaire comprised two main sections: demographic information and items related to the use of the PesantrenKU application and learning independence. The items were developed based on existing literature on online learning and student independence, ensuring their relevance and validity. The questionnaire was distributed electronically to the selected sample of santri, and responses were collected over a period of two weeks.

3.4. Measurement Instrument

The measurement instrument used in this study is a Likert-scale questionnaire with responses ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire includes items that assess various dimensions of learning independence, such as self-regulation, self-motivation, and self-directed learning. Additionally, items related to the usage frequency and perceived usefulness of the PesantrenKU application were included to examine their relationship with learning independence.

3.5. Data Analysis

The collected data was analyzed using SPSS version 25. Descriptive statistics, including mean, standard deviation, and frequency distribution, were calculated to summarize the demographic characteristics of the sample and the responses to the questionnaire items. Inferential statistics, including correlation analysis and multiple regression analysis, were conducted to test the hypotheses and determine the strength and direction of the relationship between the use of the PesantrenKU application and learning independence.

3.6. Hypotheses

The following hypotheses were formulated for this study:

H1: There is a significant positive relationship between the use of the PesantrenKU application and self-regulation in online learning among santri.

H2: There is a significant positive relationship between the use of the PesantrenKU application and self-motivation in online learning among santri.

H3: There is a significant positive relationship between the use of the PesantrenKU application and self-directed learning among santri.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

The sample for this study consisted of 100 santri from various pesantren in Indonesia. The demographic characteristics of the participants included age, gender, and duration of using the PesantrenKU application. The descriptive statistics for these demographic variables are presented in Table 1.

Table 1. Demographic Characteristics of Participants

Characteristic	Frequency	Percentage (%)

Age		
15-16 years	35	35%
17-18 years	45	45%
19-20 years	20	20%
Gender		
Male	60	60%
Female	40	40%
Duration of Using PesantrenKU		
Less than 6 months	20	20%
6-12 months	50	50%
More than 12 months	30	30%

The age distribution of the participants shows that the majority of the santri were between 15 and 18 years old, accounting for 80% of the sample. This indicates a relatively young cohort, typical of pesantren students who are often in their mid to late teenage years. The gender distribution reveals a higher proportion of male participants (60%) compared to female participants (40%), reflecting the gender composition in many pesantren.

Regarding the duration of using the PesantrenKU application, half of the participants had been using it for 6 to 12 months, suggesting a significant level of familiarity with the application among most santri. A smaller proportion (20%) had used the application for less than 6 months, while 30% had been using it for more than a year, indicating varying levels of experience with the digital tool.

The study measured three key variables related to learning independence: self-regulation, self-motivation, and self-directed learning. Each variable was assessed using a Likert-scale questionnaire, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). The descriptive statistics for these variables are presented in Table 2.

Table 2. Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Self-Regulation	4.12	0.58	3.0	5.0
Self-Motivation	4.25	0.52	3.2	5.0
Self-Directed Learning	4.18	0.54	3.1	5.0

The mean scores for the learning independence variables indicate a high level of agreement among participants on the questionnaire items related to self-regulation, self-motivation, and self-directed learning. The mean score for self-motivation was the highest at 4.25 (SD = 0.52), followed by self-directed learning at 4.18 (SD = 0.54), and self-regulation at 4.12 (SD = 0.58). These high mean scores suggest that the santri generally perceive themselves as motivated, self-regulated, and capable of directing their own learning. The standard deviations for these variables were relatively low, indicating a consistent response pattern among the participants. The minimum and maximum scores for each variable further illustrate that most participants rated their learning independence positively, with scores ranging from 3.0 to 5.0.

4.2. Reliability Analysis

The reliability of the questionnaire was assessed using Cronbach's alpha. The overall Cronbach's alpha for the instrument was 0.82, indicating good internal consistency. Each subscale of the questionnaire (self-regulation, self-motivation, and self-directed learning) also showed acceptable reliability, with Cronbach's alpha values above 0.70.

4.3. Correlation Analysis

Correlation analysis was conducted to examine the relationships between the use of the PesantrenKU application and the

dimensions of learning independence (self-regulation, self-motivation, and self-directed learning). The results are presented in Table 3.

Table 3. Correlation Matrix

Variable	Self-Regulation	Self-Motivation	Self-Directed Learning
PesantrenKU Application Usage	0.563**	0.627**	0.583**

The correlation analysis revealed significant positive relationships between the use of the PesantrenKU application and all three dimensions of learning independence. Specifically, there was a strong positive correlation between PesantrenKU application usage and self-motivation ($r = 0.627$, $p < 0.01$), self-regulation ($r = 0.563$, $p < 0.01$), and self-directed learning ($r = 0.583$, $p < 0.01$). These results support the hypotheses that the PesantrenKU application positively impacts the independence of santri in online learning.

4.4. Regression Analysis

Multiple regression analysis was conducted to further explore the effect of the PesantrenKU application on learning independence. The regression model included the use of the PesantrenKU application as the independent variable and self-regulation, self-motivation, and self-directed learning as dependent variables. The results of the regression analysis are presented in Table 4.

Table 4. Regression Analysis Results

Dependent Variable	β	t	p
Self-Regulation	0.566	6.744	<0.01
Self-Motivation	0.622	7.987	<0.01
Self-Directed Learning	0.585	7.103	<0.01

The regression analysis indicated that the use of the PesantrenKU application significantly predicts self-regulation ($\beta = 0.566$, $p < 0.01$), self-motivation ($\beta = 0.622$, $p < 0.01$), and self-directed learning ($\beta = 0.585$, $p < 0.01$). These findings confirm the positive impact of the PesantrenKU application on santri independence in online learning, supporting all the formulated hypotheses.

DISCUSSION

The results of this study provide empirical evidence on the positive effect of the PesantrenKU application on the independence of santri in online learning. The significant positive relationships between PesantrenKU application usage and the dimensions of learning independence (self-regulation, self-motivation, and self-directed learning) suggest that the application effectively supports santri in taking charge of their own learning processes.

The strong positive correlation between PesantrenKU application usage and self-motivation highlights the role of the application in enhancing students' intrinsic motivation to learn. By providing interactive and engaging content, the PesantrenKU application encourages santri to actively participate in their learning activities and develop a greater sense of responsibility for their own learning outcomes. This finding aligns with previous research indicating that digital learning tools can significantly boost student motivation [22], [23], [25].

The significant impact of the PesantrenKU application on self-regulation suggests that the application helps santri develop essential self-regulatory skills, such as setting learning goals, managing time effectively, and monitoring their own progress. These skills are critical for independent learning, as they enable students to navigate their learning activities autonomously and make informed decisions about their learning strategies [24], [26], [27].

The positive effect of the PesantrenKU application on self-directed learning further underscores the application's role in fostering a learner-centered approach. By offering personalized learning paths and instant feedback, the PesantrenKU application empowers santri to take control of their learning journeys, tailor their learning experiences to their individual needs, and continuously improve their performance. This finding is consistent with studies

highlighting the benefits of educational applications in promoting self-directed learning [28]–[30].

Overall, the findings of this study suggest that the PesantrenKU application is an effective tool for enhancing the independence of santri in online learning. By supporting self-regulation, self-motivation, and self-directed learning, the application contributes to the development of independent learners who are better equipped to succeed in both religious and secular educational contexts.

Implications for Practice and Future Research

The results of this study have important implications for educators, policymakers, and developers. Educators in pesantren can leverage the PesantrenKU application to enhance the independence of their students and create a more engaging and interactive learning environment. Policymakers can support the adoption of digital learning tools in pesantren by providing the necessary resources and training for educators and students. Developers can use the insights from this study to further refine the PesantrenKU application and other educational tools to better meet the needs of santri.

Future research can build on the findings of this study by exploring the long-term impact of the PesantrenKU application on learning independence and academic performance. Additionally, qualitative studies can provide deeper insights into the experiences of santri and educators using the application, shedding light on the factors that contribute to its effectiveness and areas for improvement.

5. CONCLUSION

The findings of this study provide empirical evidence on the positive impact of the PesantrenKU application on the independence of santri in online learning. The significant positive relationships between PesantrenKU application usage and the dimensions of learning independence (self-regulation, self-motivation, and self-directed learning) suggest that the application effectively supports santri in taking charge of their own learning processes. These results highlight the potential of the PesantrenKU application to enhance self-directed learning, promote motivation, and improve self-regulation among santri. Consequently, the application can be a valuable tool for educators in pesantren to foster a more interactive and engaging learning environment. Policymakers and developers should consider supporting the adoption and further development of such digital learning tools to optimize their use in Islamic education and ensure students are well-prepared for future educational challenges. Future research should explore the long-term impacts of the PesantrenKU application and investigate other factors that may influence its effectiveness in different educational contexts.

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