Research Article

Integrating Online Project-Based Learning to Improve Critical Thinking and Arabic Writing in Pesantren

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Article Info

Abstract

While pesantren education has a strategic role in developing critical thinking and creative writing skills in Arabic, traditional approaches often lack relevance in the digital era. This study aims to examine the effectiveness of online project-based learning (PJBL) as an innovative approach to improve students' competencies. Using a quasi-experimental design with a non-randomized sampling method, this study involved students who participated in online PjBL learning. Data analysis was conducted through an ANOVA test to measure the improvement in critical thinking and creative writing skills. The results showed that online PjBL significantly improved critical thinking (p = 0.001) and creative writing (p = 0.000). Although effective, challenges such as limited technological infrastructure and teacher readiness remain obstacles. This study recommends that pesantren adopt technology-based learning methods to prepare students for 21st-century competencies. Further research is recommended to expand the scope of the area, increase the study duration, and involve government policy support, so that the results of applying this method can be more optimal and sustainable.

To Cite this article:

INTRODUCTION

Indonesian Islamic education is formed from the pesantren education landscape. Islamic boarding schools, as traditional Islamic educational institutions, have played a central role in shaping the character and identity of Islamic education in Indonesia (Islamic et al., 2023; Kawakip & Sulanam, 2023; Mawardi & Ruhiyah, 2022). Since the founding of Indonesia, pesantren has become a significant institution in educating the nation's children and continuing the struggle for Indonesian independence with Islamic values (Islamic et al., 2023; Puspitarini et al., 2023). The cultivation of religious and cultural values in pesantren can make a lasting contribution to the holistic development of individuals for society (Islamic et al., 2023).

In the current era of technological and scientific development, students must be proficient in creative writing and critical thinking. This is to ensure that students are ready to face technological developments and also to develop their holistic abilities in academic growth. Pesantren has a broad educational purpose, including educating students to develop in their times (Kosim et al., 2023; Muafiah et al., 2022). Under this goal, many Islamic boarding schools offer students opportunities to develop their potential, such as learning to write in

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Arabic and enhancing critical thinking skills. Writing and critical thinking are essential skills that enable students to maintain Islamic traditions (Altinyelken, 2021; Sahin, 2018). Through creative writing, students not only express creativity in writing but also integrate critical thinking skills (Hikmawati et al., 2021). This activity can provide an opportunity for students to develop complex thinking skills through expressions of their holistic thinking. The results of previous research indicate that students proficient in creative writing can have a positive impact on their critical and creative thinking skills (Umar, 2021). Al-amery (2020) explains that students can actively develop their academic aspect through creative writing in Arabic. Thus, it can be concluded that creative writing in Arabic can be integrated with the curriculum of Islamic boarding schools.

Developing critical thinking skills and writing in Arabic is an essential skill for students in Indonesia. Career development and academic prospects are the reasons for mastering these skills (Altinyelken, 2021; Apdoludin & Martinisyamin, 2022; A. Aziz et al., 2022; Göçen, 2019; Hikmawati et al., 2021). With the development of these skills, students are not only able to learn Arabic but also to think analytically and expressively (A. Aziz et al., 2022; Huda et al., 2022). The results of previous research explained that the mastery of critical thinking skills and writing Arabic had a significant impact on the academic competence of students (Alwaleedi et al., 2019). Thus, these two skills become integral to the pesantren curriculum, enabling students to achieve optimal academic prospects. According to Arifin et al. (2023), teachers can enhance critical thinking skills and creative writing skills by employing project-based learning methods.

Project-based learning, integrated with online learning, is an effective method for improving critical thinking and creative writing skills. This method has been shown to make a significant contribution to the academic development of students (Tambak et al., 2022). With project-based learning integrated with online learning, students can develop their linguistic competence creatively. Some researchers argue that online project-based learning can make a significant contribution to writing mastery and critical thinking (Alotaibi, 2020; Cortázar et al., 2021; Pantiwati et al., 2023). Thus, it can be concluded that this method is highly effective in preparing students for competition in the current era of science and technology development.

The implementation of project-based learning strategies online has a gap in improving critical thinking skills and creative writing skills in Arabic among students. This study aims to address this knowledge gap by examining the potential of students in utilizing creative online writing projects that have not been widely researched. Meanwhile, the purpose of this study is to find out whether online project-based learning strategies can make a significant contribution to the development of critical thinking skills and creative writing in Arabic in Islamic boarding schools. Thus, the results of this research are expected to provide valuable knowledge and make a real contribution to the teaching of Arabic in Gresik, East Java.

METHOD

The researcher employed a quasi-experimental design to investigate the impact of project-based online learning methods on improving critical thinking skills and creative writing in Arabic at the Gresik Islamic boarding school in East Java. Additionally, researchers also aim to understand the relationship between variables. Quasi-experiment is the presence of a treatment, measurement of research impact, the existence of an experimental unit, but not using random assignments to obtain comparisons to conclude changes caused by the treatment (Chiang et.al., 2011; Lodico, M., Spaulding, D. & Voegtle, 2010; Watson, 2015). The researchers divided the participants into two groups: experimental and control. The experimental class is a group that will learn to write Arabic using an online project-based learning method, while the control class is a group of students who learn creative writing with a project-based learning method without online assistance. Both classes will be evaluated based on their critical thinking skills. There are three research variables: one independent variable and two dependent variables. In this study, the researcher used the project-based learning method as an independent variable, and critical thinking skills and creative writing skills were the dependent variables.

Research Subject

The researcher used two Islamic boarding schools in Gresik that have developed the language as the main language in daily life, namely the Mambaus Sholihin Suci Manyar Gresik Islamic boarding school and the Al-Furqon Driyorejo Gresik Islamic boarding school. The two Islamic boarding schools are used as research places because they have special dormitories for the development of the Arabic language. The research sample consisted of 243 students, comprising 175 students from the Mambaus Sholihin Islamic Boarding School and

68 students from the al-Furqon Islamic Boarding School. Because the two peantren schools are separated by gender, in the selection of the research sample, a non-randomized random sampling strategy will be used, namely, there are four classes of mambaus sholihin male students and 1 class of male students of al-furqon boarding school included in the experimental class, and four classes of mambaus sholihin girls and two classes of female students of al-furqon.

Data Collection Techniques

At the stage of data collection techniques, the researcher conducts experimental preparations, namely by developing learning tools, including teaching modules, critical thinking instruments, online media with Google Classroom, pretest and posttest question instruments, FGD with teachers to equalize perceptions of the use of methods and media used, and also research implementation permits. For the experimental stage, the researcher first provides pretest questions to assess the initial ability of the research sample. After conducting the pretest, the researcher offered special treatment to the experimental class using an online project-assisted learning method. The final step was to conduct a posttest to assess the students' final ability. The implementation of this research spanned two months, comprising twelve face-to-face meetings.

Data Analysis Techniques

In the implementation of the study, the researcher analysed the data using Analysis of Variance (ANOVA), which involved conducting a t-test, a test for data normality, and a test for homogeneity for the precondition test. The researcher uses a normality test to determine the normality of the research data.

RESULTS AND DISCUSSION

Results

Table 1. Pretest Data - Posttest Results of Learning to Write Creative and Critical Thinking Skills

Group Statistics

	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Pretest Creative Writing	Experiment	122	44.1311	7.23507	.65503
	Control	121	43.3058	6.31512	.57410
Pretest_Critical_thinking	Experiment	122	17.0000	2.41209	.21838
	Control	121	16.1983	2.26060	.20551
Posttest Creative Writing	Eksperiment	122	77.2377	8.45215	.76522
	Control	121	54.9256	5.87958	.53451
Posttest_Critical_thinking	Eksperiment	122	32.5328	4.68898	.42452
	Control	121	28.1157	7.40742	.67340

This table presents descriptive statistics related to creative writing and critical thinking skills in the experimental and control groups during the pretest and posttest phases. In the pretest, the experimental group showed a slightly higher average score (44.13) than the control group (43.31), with a greater level of variation or standard deviation (7.24) than the control group (6.32), suggesting that the spread of scores within the experimental group was more diverse. In the posttest, the experimental group experienced a significant increase in average score (77.24) compared to the control group (54.93), with a standard deviation that also increased (8.45), indicating a variation in the impact of the intervention on participants. In terms of critical thinking skills, the experimental group recorded an average score of 17.00 in the pretest, which was slightly higher than that of the control group (16.20). Both groups had low standard deviations, indicating consistency in the participants' scores. However, in the posttest, the experimental group experienced a significant improvement with an average score of 32.53 compared to the control group (28.12), and a lower standard deviation (4.69) compared to the control group (7.41), indicating a more consistent improvement. The intervention or teaching method applied to the experimental group proved effective, with a significant improvement in creative writing skills, as evidenced by a score increase of more than 33 points from the pretest to the posttest. Additionally, it had a more uniform impact on critical thinking skills, as reflected in the lower level of score variation. These

findings demonstrate that the learning methods employed in the experimental group were successful in significantly enhancing creative writing and critical thinking skills.

Table 2. Explanation of Pretest and Posttest Data on Critical Thinking Ability

Group Statistics

	Pretest	N	Mean	Std. Deviation	Std. Error Mean
Arguments	Eksperiment	122	2.7049	.59874	.05421
	Kontrol	121	2.6446	.51413	.04674
Reasons	Eksperiment	122	2.7049	.63881	.05783
	Kontrol	121	2.6116	.50616	.04601
Evidence	Eksperiment	122	3.1803	.79270	.07177
	Kontrol	121	2.5124	.51826	.04711
Recognition of Opposition and Refutation	Eksperiment	122	3.4508	.86342	.07817
	Kontrol	121	2.9256	.63463	.05769
Conclusion	Eksperiment	122	2.1803	.57520	.05208
	Kontrol	121	2.8760	.71380	.06489
Fallacies	Eksperiment	122	2.7541	.46907	.04247
	Kontrol	121	2.6281	.53436	.04858
	Posttest	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Arguments	Experiment	122	5.8852	.93770	.08490
	Control	121	5.1405	1.45090	.13190
Reasons	Experiment	122	5.3033	.97819	.08856
	Control	121	4.1240	1.36364	.12397
Evidence	Experiment	122	5.5656	1.02035	.09238
	Control	121	4.9587	1.44566	.13142
Recognition of Opposition and Refutation	Experiment	122	5.4098	.87909	.07959
	Control	121	4.7603	1.27818	.11620
Conclusion	Experiment	122	5.4344	.95336	.08631
	Control	121	4.6364	1.44914	.13174
Fallacies	Experiment	122	4.9262	.74043	.06704
	Control	121	4.5372	.94905	.08628

The data showed an improvement in critical thinking skills in both groups, namely the Experiment and Control groups, from the pretest to the posttest. In the pretest, the two groups had relatively similar abilities, although the Experiment group was slightly superior in some categories. After the intervention, the Experimental group showed a much larger average increase in each category compared to the Control group, suggesting that the interventions given were effective in improving their critical thinking skills. The average Experiment group showed significant improvement in constructing and analysing arguments, reasoning, evaluating evidence, recognising and rejecting opposing views, drawing logical conclusions, and identifying fallacies. In addition, the standard deviation and standard error mean in the posttest showed less variability in the Experiment group compared to the Control group, indicating that the improvement in the Experiment group was more consistent. Overall, these results suggest that the training methods or interventions applied to the Experimental group are effective in improving critical thinking skills and can be a promising approach to developing critical thinking skills in an educational or training environment.

Table 3. Research Hypothesis Test

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	59.916[a]	46	1.303	306.351	.000
Intercept	253.792	1	253.792	59691.789	.000
Berfikir_kritis	.048	1	.048	11.303	.001
Menulis_kreatif	22.411	31	.723	170.033	.000
Berfikir_kritis * Menulis_kreatif	1.800	14	.129	30.245	.000
Error	.833	196	.004		
Total	606.000	243			
Corrected Total	60.749	242			

a. R Squared = .986 (Adjusted R Squared = .983)

The results of the hypothesis test in this study indicate that the model used is overall significant in predicting the influence of the variables studied, with an F-value of 306.351 and a significance level of 0.000. An R-squared value of 0.986 (adjusted R-squared = 0.983) indicates that 98.6% of the variation in the data can be explained by the model, demonstrating a robust relationship. The Critical Thinking variable has an F-value of 11.303 with a significance level of 0.001, and the Creative Writing variable has an F-value of 170.033 with a significance level of 0.000, both of which have a significant effect on the results. In addition, the interaction between Critical Thinking and Creative Writing (with an F value of 30.245 and a significance level of 0.000) also revealed a significant interaction effect, indicating that these two variables influence each other in determining the outcome. The low Mean Square value of error (0.004) suggests that the variation in error in this model is relatively small. Overall, these results indicate that critical thinking and creative writing skills, as well as their interaction, play a significant role in this research model, making them essential factors in predicting the measured outcomes.

Discussion

The Influence of Project-Based Learning with Online Learning on Improving Students' Critical Thinking Skills

Project-Based Learning (PjBL) has become an increasingly popular approach in education, especially in the context of online learning. This model focuses not only on material mastery but also on developing students' critical thinking skills. Sehuah learning using the PjBL approach can improve critical thinking skills through students' active involvement in the learning process, where they are required to plan, implement, and evaluate the projects they are working on (Arizona et al., 2020; Rati et al., 2017; Rina Rahayu & Riva Ismawati, 2022). In the context of online learning, the implementation of PjBL enables students to collaborate and interact virtually, thereby enriching their learning experience (Anjarsari et al., 2021; Nurjanah et al., 2021). One of the important aspects of PjBL is its ability to encourage students to think critically through inquiry and problem-solving. Another study explains that project-based learning models can enhance students' creativity and learning outcomes, which is a key indicator of critical thinking skills (I. N. Aziz et al., 2022; Muna & Aziz, 2021). Moreover, Fatmawati et al (2022) emphasizes that the development of project-based learning tools can improve science process skills, which also contributes to the development of students' critical thinking skills. Thus, PjBL not only focuses on the final result but also on the process that students undergo in achieving these results.

The application of PjBL in an online context also showed positive results. Amanda et al (2023) reports that the use of the PjBL model in online learning can help students overcome difficulties in subject matter, as

well as improve their science process skills. This is in line with the findings of Kakalejcik & Pal'ova (2019), which suggests that online project-based learning can improve students' skills. Thus, PjBL in an online context not only provides flexibility in learning, but also increases student involvement in the learning process. Critical thinking skills can also be improved through collaboration within projects. Project-based learning can also develop students' collaborative skills, which are integral to critical thinking (Sari & Prasetyo, 2021). In addition, research by Pristanti et al (2023) shows that the implementation of PjBL can improve students' learning achievement, which reflects their critical thinking ability in completing complex tasks. Thus, collaboration in projects not only enriches the learning experience but also encourages students to think critically and creatively. However, challenges in implementing PjBL, especially in an online context, also need to be taken into consideration. Aziz et al. (2022) note that some students may struggle to adapt to this learning model, particularly if they lack adequate knowledge or skills. Therefore, educators need to provide sufficient support and create a learning environment that fosters the development of students' critical thinking skills. This includes providing appropriate guidance in project planning and execution, as well as creating opportunities for students to reflect on their learning experiences.

Additionally, the use of technology in PjBL can also be a significant factor in enhancing students' critical thinking skills. For example, the use of Google Classroom in project-based learning can improve the quality of learning and student engagement (Praditya & Prasetya, 2023). By utilising digital platforms, students can more easily collaborate and share ideas, which in turn enhances their critical thinking skills (Haleem et al., 2022). In this context, educators must select the appropriate tools and technologies to support the project-based learning process. This is because project-based learning, especially in an online context, has significant potential to improve students' critical thinking skills. Through active involvement in projects, and the use of technology, students can develop the critical thinking skills necessary to face real-world challenges (Asiri et al., 2021). However, educators need to provide adequate support and create a conducive learning environment to ensure the successful implementation of PjBL in improving students' critical thinking skills.

The Influence of Project-Based Learning with Online Learning on Improving Speaking Skills in Arabic

Recent research has underscored the effectiveness of project-based learning (PBL) and digital platforms in improving Arabic speaking skills among students. PjBL significantly enhanced students' Arabic speaking skills, with all participants in the experimental group achieving scores in the "Excellent" category (Rahmawati et al., 2024). Additionally, the integration of online platforms, such as Kahoot and Raptivity, has enriched Arabic language teaching, creating an interactive and engaging learning experience (Busiri, 2020; Yurianto et al., 2023). The platform facilitates creative quiz design, provides hands-on feedback, and incorporates competitive elements that boost student motivation (Busiri, 2020).

Additionally, the use of smartphone video recording within the framework of PjBL can also enhance Arabic speaking skills, leading to improved student performance (Solehudin, 2021). The study illustrates the promising potential of combining PjBL with digital tools to create a dynamic learning environment that effectively improves Arabic language proficiency, especially in speaking proficiency. By encouraging interactivity, flexibility, and engagement, this approach can contribute significantly to students' language development (Rahmawati et al., 2024). One effective implementation of project-based learning (PjBL) in improving Arabic speaking skills is through cultural projects. Students can work on projects that explore different aspects of Arabic culture, such as traditional music, distinctive cuisines, or celebrations of specific festivals. In this process, they can use platforms like Google Slides or Prezi to create presentations that incorporate vocabulary and phrases in Arabic relevant to the chosen topic. This method not only broadens their knowledge of Arabic culture but also trains their ability to use Arabic in real-world contexts.

Although PBL and digital technology provide many benefits, their implementation cannot be separated from various challenges. One of the main challenges is the limited technology facilities in some educational institutions (Subroto et al., 2023). Not all schools or Islamic boarding schools have adequate access to the technological devices, such as computers or the internet, that are necessary to access digital platforms like

Kahoot and Raptivity. This can be an obstacle for students who want to participate in project-based learning powered by technology (Taufiqurrahman, 2022).

Additionally, the readiness of teachers and students in using digital technology is another factor that needs to be considered. Not all teachers have sufficient understanding of using digital platforms for learning purposes, so adequate training and support are needed (Hulu, 2023). Students also need guidance on using the platform effectively. In addition, PjBL requires careful planning from teachers, where each learning step must be well structured so that learning goals can be achieved optimally (Gultom et al., 2024). These barriers need to be overcome through the support of facilities, training, and education policies that support the application of these methods and technologies.

The results of this study show that the integration between PjBL and digital platforms has a significant impact on students' Arabic speaking skills. PjBL provides a real learning context, while digital technology enhances student interactivity and engagement. This study suggests that educational institutions, particularly Islamic boarding schools and schools, may consider implementing PjBL with the support of digital technology to enhance the quality of Arabic language instruction. It also encourages educational institutions to adapt to technological developments to remain relevant to the learning needs of the digital era. Based on the limitations identified in this study, it is recommended that further research include a broader range of educational institutions from different regions to obtain a more comprehensive picture. Long-term research is also necessary to evaluate the ongoing impact of applying PjBL and digital technologies on students' language skills. Follow-up research is expected to explore other external factors, such as government policy support and access to technology, that may affect the effectiveness of this method.

PjBL's role in improving Arabic speaking skills, as well as the significant contribution of digital platforms in creating interactive and meaningful learning experiences. Despite the challenges in implementing this method, this study demonstrates that PBL approaches and digital technologies have great potential for further development. With careful planning, adequate training, and supportive policy, this method can be optimally implemented to produce graduates who are competitive, adaptable, and competent in Arabic.

The relationship between Project-Based Learning, Online Learning, Critical Thinking Skills, and Speaking Ability in Arabic

The integration of online learning and a project-based approach in developing critical thinking skills has been shown to improve Arabic language skills significantly. The shift to online learning presents challenges for students and teachers in developing Arabic language proficiency (Khairani et al., 2021). Despite barriers such as limited internet access, project-based online learning has emerged as a potential solution for effective teaching during the pandemic, offering opportunities for in-depth exploration of concepts and improved learning outcomes (Taryana, 2023). The study highlights the potential of integrating online platforms, project-based approaches, and critical thinking in Arabic language education. Other research underscores the importance of integrating online learning, project-based approaches, and critical thinking in the field of Arabic language education. Afif (2019) explained that interactive online learning media, especially video-assisted platforms, significantly improve students' critical thinking skills in Arabic courses.

In summary, the collective insights from this study highlight the potential advantages of integrating online platforms, project-based learning, and critical thinking into Arabic language education. This comprehensive approach not only addresses the urgent challenges posed by the pandemic but also sets the stage for more engaging and effective learning experiences as we advance. The findings suggest that integrating these methodologies can lead to a more dynamic and responsive educational environment. By utilizing online platforms, educators can create a more flexible learning atmosphere that accommodates a wide range of learning styles and paces. Additionally, project-based learning encourages collaboration among students, fostering a sense of community and shared responsibility for achieving learning outcomes.

As educators continue to adapt to the evolving landscape of language education, an emphasis on critical thinking will be crucial in preparing students to navigate complex real-world situations. The combination of technology and innovative teaching strategies not only improves language proficiency but also equips students

with essential skills for their future endeavors. In conclusion, the ongoing exploration of online learning, project-based approaches, and critical thinking in Arabic language education hold great promise for enriching the learning experience and improving student outcomes in the post-pandemic world.

CONCLUSION

Islamic boarding school education in Indonesia plays a significant role in shaping the character and identity of Islamic education by emphasising the development of critical thinking skills and creative writing in Arabic. The integration of project-based learning methods online is expected to improve these skills, thus preparing students to face the challenges of the technological era. The implications of this study suggest that project-based methods in Islamic boarding schools have the potential to enhance the quality of education and technological adaptation, offering a model for other Islamic institutions in Indonesia. However, this study has limitations related to the scope of Islamic boarding schools, limited technological facilities, and the teachers' readiness to adopt new methods, which may affect the results. For further research, it is recommended that the scope of pesantren be expanded and research conducted in the long term to evaluate the sustainable impact of this method on students' skills. Additionally, it is important to consider external factors such as government policy support and access to technology. This research contributes to the literature on educational innovation in Islamic boarding schools, offers practical recommendations for teachers and managers to adopt learning that is relevant to the competency needs of the 21st century, and responds to technological changes in Islamic boarding school curricula.

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