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Exploring the Effectiveness of E-Learning in Boosting Motivation for Islamic Education Teaching Methods Among Future Educators

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ABSTRACT

This study investigates the influence of e-learning strategies on the learning motivation of prospective teachers in the Islamic Religious Education (PAI) Study Program at STAIN Bengkalis. The integration of digital tools is becoming increasingly relevant in enhancing student engagement and academic performance. A quantitative research design was employed using regression analysis. Data were gathered from 90 fifth-semester students through closed-ended questionnaires, focusing on their motivation levels in relation to the use of technology-based learning media, including e-books, educational videos, and online discussions. The findings indicate that e-learning strategies have a significant positive impact on student motivation, accounting for 45% of the variance in learning motivation. However, 55% of the variation is attributed to other factors, such as personal interest in the subject matter and self-efficacy. These results suggest that while e-learning tools are effective in boosting motivation, they are not the sole contributors. Internal factors and individual learner differences also play a crucial role and must be addressed to fully optimize learning outcomes. E-learning strategies significantly enhance motivation among prospective PAI teachers. However, a more comprehensive approach—considering both internal and external factors—is necessary for achieving sustained academic motivation. Future research should examine additional variables, such as time management and social interaction, to refine e-learning practices in Islamic education.

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1. INTRODUCTION

School serves as a vital space for learning, skill development, and preparation for entering the workforce (Fitriany, 2022; Ivonesti et al., 2020; Ivonesti1, 2018). To ensure the effectiveness of this learning process—particularly for prospective teacher candidates—it is essential to enhance the competence of lecturers (Dewi, 2021; Juntunen et al., 2024; Tampubolon et al., 2023; Vauhkonen et al., 2024).

A key competency for lecturers in education programs is the ability to integrate appropriate, up-to-date learning media—especially technology-based tools that align with the demands of the 5.0 era. The Ministry of Research, Technology, and Higher Education (Ristek Dikti) has strongly promoted the use of digital platforms such as e-learning and online education (Hendriawan & Septian, 2019; Ritonga et al., 2022; Suryawan & Permana, 2020). E-learning refers to the use of information and communication technology that allows students to access learning materials anytime and anywhere (Hermanto & Ivandri, 2024; Judijanto et al., 2024). This includes tools such as e-books, educational videos, interactive slides, discussion forums, live chats, quizzes, and surveys.

The implementation of e-learning has had a substantial impact across various educational domains, including Islamic religious education. Research has shown that it can significantly boost student motivation (Fitria et al., 2020; Junedi & Sari, 2020; Sujiwo & A'yun, 2020). For example, Siti Maryam Munjiat et al. (2022) found a positive correlation between the use of simplified e-learning platforms and student motivation. However, most existing studies focus on general student populations and overlook the teaching preparation of prospective educators—particularly in terms of how e-learning can enhance their motivation to develop effective teaching strategies.

Moreover, current research has yet to explore how learning motivation through e-learning is influenced by factors such as instructional design, student-lecturer interaction, and the availability of adequate technological infrastructure. This gap highlights the need for further investigation into optimizing e-learning as a tool for innovative teaching practices. Therefore, this study aims to examine the effectiveness of e-learning in enhancing the learning motivation of prospective educators, especially in connection to teaching methods. A specific problem identified is the lack of an integrated approach that combines e-learning with methodologically relevant strategies to foster sustained motivation in teacher training contexts.

This issue holds significant importance, as prospective educators play a crucial role in shaping meaningful, adaptive learning experiences that align with rapid technological advancements. By addressing the existing research gap in the integration of e-learning for teacher training—particularly in Islamic religious education—this study aims to offer practical and impactful solutions.

The primary objective of this research is to investigate the effectiveness of e-learning in enhancing the learning motivation of prospective educators, with a specific focus on instructional methods in Islamic religious education. The study also aims to identify key factors influencing the successful implementation of e-learning, assess its potential to foster sustained motivation, and provide actionable recommendations for developing relevant and effective technology-based learning strategies.

The novelty of this study lies in three key areas. First, it centres on prospective educators—a group that has been relatively underexplored in studies evaluating the impact of e-learning within the context of Islamic religious education. Second, the research employs a mixed-method approach, combining both quantitative and qualitative analyses to uncover the specific factors that drive learning motivation. Third, the study proposes a practical model for designing e-learning strategies that not only enhance motivation but are also aligned with the evolving demands of modern education, particularly in the domain of religious instruction.

By addressing these dimensions, this research contributes meaningful insights to the academic discourse and offers practical implications for the development of technology-driven learning approaches in teacher education.

2. METHOD

This study employed a quantitative research method aimed at collecting measurable data to examine the impact of online learning strategies on students' learning motivation. Data were gathered through a closed-ended questionnaire and analyzed using regression techniques.

The target population consisted of 558 students enrolled in the Islamic Religious Education (PAI) Study Program at STAIN Bengkalis. Given the study's focus on the "Islamic Religious Education Learning Strategy" course, a purposive sampling technique was used. The sample comprised 90 fifth-semester students currently taking the course.

The research began with the implementation of online learning strategies in the selected course. Throughout the lecture sessions, instructional delivery and student engagement were facilitated via e-learning tools, which included e-books, educational videos, slide presentations, chat rooms, online discussions, quizzes, and surveys.

Following the completion of the lectures, a Google Form-based questionnaire was distributed to the sample group. This questionnaire was designed to evaluate the influence of online learning strategies on the learning motivation of students in the PAI Study Program. In addition to the questionnaire, observations were conducted to assess students' engagement and interest in educational media during the course. The questionnaire items reflected students' perceptions of electronic learning media usage and their motivation throughout the learning process. Responses were measured using a 4-point Likert scale.

The research framework consisted of two variables:

- The independent variable (X): the effectiveness of using electronic educational media, measured through eight indicators, each represented by a specific questionnaire item (Agustina, 2013).
- The dependent variable (Y): students' learning motivation, measured using eight indicators, including duration of activity, frequency of participation, persistence, rule compliance, perseverance, aspiration level, achievement level, and attitude direction (Yuliani H. & Winata, 2017). Each indicator was also represented by one statement in the questionnaire.

To ensure the validity and reliability of the instrument, appropriate statistical tests were conducted. The collected data were analyzed using simple linear regression, with hypothesis testing performed through t-tests, R-square analysis, and regression modeling. All data analysis was conducted using SPSS version 22.

This research was carried out in the Islamic Religious Education Study Program, Department of Education, STAIN Bengkalis, located in Bengkalis Regency, Riau Province.

3. FINDINGS AND DISCUSSION

3.1 Findings

A valid instrument is one that effectively measures data according to the research objectives (Zakiah et al., 2020; Zuhri et al., 2024). To determine the validity of the instrument, a comparison is made between the calculated *r* value (r count) and the *r* table value (r table). The criteria for validity used in this study are as follows: if *r* count > *r* tabel, the instrument is considered valid, but if *r* count < *r* table, the instrument is considered invalid.

In this study, the value of *r* table for a sample size of N = 90 at a significance level (α) of 0.05 is obtained from the Pearson Product Moment table. For degrees of freedom (df) = N - 2 = 90 - 2 = 88, the value of *r* table is 0.207. The validity test of the questionnaire, which includes statements related to e-learning and student motivation, was conducted using SPSS version 29. The comparison between the

calculated *r* value and the *r* table value is presented in Table 1 to determine whether each statement meets the validity criteria.

Table 1. Summary of Instrument Validity Tests

Variable	Number of Items	r-count	r-table	Description
x	1	0.467	0.361	Valid
	2	0.576	0.361	Valid
	3	0.520	0.361	Valid
	4	0.465	0.361	Valid
	5	0.568	0.361	Valid
	6	0.480	0.361	Valid
	7	0.292	0.361	Valid
	8	0.517	0.361	Valid
y	9	0.354	0.361	Valid
	10	0.364	0.361	Valid
	11	0.575	0.361	Valid
	12	0.213	0.361	Valid
	13	0.476	0.361	Valid
	14	0.601	0.361	Valid
	15	0.545	0.361	Valid
	16	0.529	0.361	Valid

Based on the data in Table 1, it can be observed that the calculated *r* values for all 16 questionnaire items exceed the critical *r* value of 0.207, and all are positive. This indicates that each statement item used in the questionnaire is valid and effectively measures the intended variables.

Since all items for both the independent and dependent variables were found to be valid, the analysis proceeded to the reliability test. According to Riyadi & Mulyapradana (2017), a research instrument is considered reliable if the Cronbach's Alpha value exceeds 0.70. The results of the reliability test for both the independent and dependent variables are presented in Table 2.

Table 2. Reliability test result

Variable	Total item	*Cronbach'sAlpha*	Description
Online learning strategy (X_1)	8	0.839	Reliable
Student's motivation to study (Y)	8	0.848	Reliable

Since the data met both validity and reliability criteria, the research proceeded to the next phase of analysis. The hypotheses for this study are stated as follows: the null hypothesis (H_0) posits that the e-learning instructional strategy has no effect on improving the learning motivation of prospective teacher students, while the alternative hypothesis (H_1) suggests that the e-learning instructional strategy does have a significant effect on enhancing their learning motivation.

To ensure the suitability of statistical tools for hypothesis testing, a series of classical assumption tests were conducted. These preliminary tests are essential to validate the assumptions underlying linear regression analysis and to ensure that the results are statistically sound and reliable.

The normality test was used to determine whether the data follow a normal distribution, which is a fundamental assumption in parametric testing. The linearity test examined whether a linear relationship exists between the independent and dependent variables. The homoscedasticity test assessed whether the variance of residuals is constant across all levels of the independent variable, ensuring the consistency of prediction errors. Additionally, the autocorrelation test was performed to detect any patterns or correlations among residuals in sequential or time-ordered data. Finally, the

multicollinearity test was conducted to identify any high intercorrelations among independent variables that might compromise the stability and interpretation of the regression model.

These assumption tests are critical in determining whether the data meet the necessary conditions for valid hypothesis testing and to guarantee the reliability of the regression results.

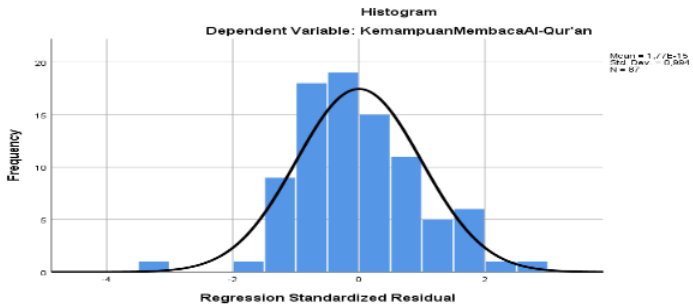

Figure 1. Chart of normality test

The line on the histogram graph is curved in a standard normal manner, so it can be concluded that the residuals are normally distributed.

Table 3. Summary of autocorrelation and coefficient of determination test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.671[a]	.0450	.0441	5.123	1.897

To detect the absence of autocorrelation, the DW value will be compared with the DW table. From the table above, the DW value = 1.897. For the dL and dU values, they can be seen in the DW table at a significance of 0.05 with n = 87 and k = 1. Then the dL value is found to be 1.6280, and the dU value is 1.6748. The dU value is (4 - 1.6745 = 2.3255). This means that the DW value (1.897) lies in interval 3, namely 1.65 < DW < 2.35, which means there is no autocorrelation.

Table 4. Summary of autocorrelation test results, t-test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	63.141	5.873		7.752	.000		
	X	.198	.092	.227	5.151	.034	1.000	1.000

Based on Table 4, the VIF value is known to be 1 < 10, so it can be concluded that there is no multicollinearity in this regression model. Based on the linearity test conducted using SPSS 29, the significance value for Deviation for Linearity is 0.446, which is greater than 0.05. This indicates that there is a linear relationship between the independent and dependent variables. Thus, the assumption of linearity is met, allowing the data to be utilized for regression analysis. Furthermore, the Glejser

test results show a significance value for the independent variable of 0.565, which is also greater than 0.05. This finding suggests that the residual variance is homogeneous, indicating no heteroscedasticity. Therefore, the data meet the assumption of homoscedasticity, a crucial requirement for regression analysis. Since all data meet the classical assumption tests, hypothesis testing in this study can be performed using simple linear regression analysis. This analysis aims to examine the direct influence of the independent variable on the dependent variable, providing statistically valid and reliable results for further interpretation and conclusions

3.2 Discussion

Based on the data presented in Table 4, the calculated *t*-value is 5.151, which exceeds the critical *t*-value of 1.662. Additionally, the significance level of 0.034 is below the threshold of 0.05. These results lead to the rejection of the null hypothesis (H_0) and the acceptance of the alternative hypothesis (H_1), indicating that e-learning instructional strategies have a significant positive effect on the learning motivation of prospective teacher students.

To measure the magnitude of this effect, we refer to the coefficient of determination (R^2) value found in Table 3, which is 0.45. This means that 45% of the variation in students' learning motivation is explained by the use of e-learning strategies. These findings are consistent with prior studies, such as Sulisworo et al. (2017), which found that students taught through e-learning achieved better learning outcomes compared to those taught using conventional face-to-face methods. Similar support comes from studies by Sujiwo & A'yun (2020), Suwastika (2018), and Saifulloh & Priambodo (2021), all of which concluded that e-learning positively influences student motivation.

However, it is important to acknowledge that 55% of the variance in students' motivation is attributed to other factors not addressed in this study. These may include personal interest in the subject matter, self-efficacy, individual learning styles, time management skills, and the presence of clear learning goals. Such factors likely play a significant role in either strengthening or weakening a student's motivation. The results emphasize that while e-learning is a valuable strategy, its effectiveness can be maximized when combined with a holistic approach that considers additional internal and external motivational drivers.

Learning motivation is a multifaceted construct shaped by complex interactions between internal psychological factors and external environmental conditions. This study reaffirms that e-learning strategies contribute meaningfully (45%) to improving motivation, but the remaining influence stems from broader variables. External influences, such as family support, access to reliable technology, a conducive learning environment, and emotional encouragement from peers and instructors, also impact students' motivation levels. For instance, limited internet access or inadequate digital devices may reduce the effectiveness of online learning. Conversely, a supportive academic and social atmosphere can enhance learners' confidence and engagement.

These findings align closely with Self-Determination Theory (SDT), developed by Deci and Ryan, which posits that motivation is driven by the fulfillment of three basic psychological needs: autonomy, competence, and relatedness. In the context of e-learning, strategies that support these needs—such as flexibility in learning (autonomy) and constructive feedback (competence)—are likely to enhance students' intrinsic motivation. However, when these needs are unmet, external pressures like academic stress or time constraints can undermine learning motivation.

From a theoretical standpoint, the results of this study are consistent with previous literature. For example, Maulana et al. (2023) highlighted that learning styles and technological support significantly enhance the success of e-learning. Similarly, Suryani et al. (2020) emphasized self-efficacy as a key factor influencing student motivation in online settings. However, the findings diverge from Aini et al. (2024), who argued that direct interaction with instructors plays a more vital role than technology itself in maintaining student motivation.

This study offers a valuable contribution to the growing body of research on technology-based learning, particularly in its focus on prospective teacher students. It underscores the potential of e-learning strategies to enhance motivation but also highlights the need for broader pedagogical frameworks that integrate both technological tools and human-centered approaches. Future research is recommended to explore the external and contextual variables that influence motivation more deeply. Potential areas for further study include the impact of individual learning styles, family and peer support, and the role of specific digital tools in fostering engagement and motivation.

In addition, employing a mixed-methods approach, incorporating qualitative insights, could provide a richer understanding of how students perceive motivation within e-learning environments. By recognizing the multidimensional nature of learning motivation, educators and policymakers can design more effective and inclusive teaching strategies that not only leverage technology but also support students in achieving their full academic potential. This will contribute meaningfully to the advancement of innovative, student-centered, and sustainable e-learning practices in teacher education and beyond.

4. CONCLUSION

This study concludes that e-learning strategies have a significant positive effect on enhancing the learning motivation of prospective teacher students, particularly in the context of Islamic education. However, the findings also reveal that e-learning accounts for only 45% of the variance in learning motivation, indicating that other influential factors—such as students' interest in the subject matter, self-efficacy, learning styles, time management, and the presence of clear learning goals—also play a substantial role. Moreover, external factors, including access to technology, environmental support, and opportunities for social interaction, further impact motivation and must be considered. One of the limitations of this research is that it focused solely on the relationship between e-learning and motivation without exploring these other contributing factors in depth. Additionally, the study was conducted in a specific institutional and cultural setting, which may limit the generalizability of the findings. Therefore, future research should adopt a more holistic and multifaceted approach, examining additional variables such as time management, social support, and student-teacher interactions. It is also recommended that researchers use mixed-method approaches to gain deeper insights into learners' experiences and motivations in e-learning environments. Educators and policymakers should consider implementing flexible and blended learning models that combine the benefits of online and face-to-face instruction while aligning technological tools with Islamic values and pedagogical goals. By addressing both internal and external motivational factors, future strategies can better support student engagement and lead to more effective and meaningful learning outcomes in Islamic education.

REFERENCE

Aini, K., Mandailina, V., & Febriani, P. A. (2024). Pengaruh Keterlibatan Dosen dalam Proses Pembelajaran Matematika Terhadap Kepuasaan Belajar Mahasiswa. *Jurnal Pendidikan Matematika Indonesia*, 93–101.

Dewi, P. S. (2021). E-Learning : Penerapan Project Based Learning pada Mata Kuliah Media Pembelajaran. *Prisma*, *10*(1), 97. https://doi.org/10.35194/jp.v10i1.1012

Fitria, D., Saifudin, S., & Zaman, B. (2020). The Effect of E-Learning on Learning Motivation in Islamic Religious Education Subjects. *Halaqa: Islamic Education Journal*, *4*(2), 113–124. https://doi.org/10.21070/halaqa.v4i2.984

Fitriany, R. (2022). Pengaruh Pelatihan Kepemimpinan Dasar Meningkatkan Self Efficacy. *RAP (Riset*

Aktual Psikologi) Universitas Negeri Padang, Indonesia. https://doi.org/10.24036/rapun.v12i2.

Hendriawan, M. A., & Septian, A. (2019). Pengembangan JiMath Sebagai Multimedia Pembelajaran Matematika Berbasis Android Untuk Siswa Sekolah Menengah Atas. *IndoMath: Indonesia Mathematics Education*, *2 (1)*, 45–52. https://doi.org/https://doi.org/10.30738/indomath.v2i1.2785

Hermanto, A., & Ivandri, D. D. (2024). Virtual Computer Laboratory Learning System Integrated with Social Media and Video Conference. *Jist*, *5*(10). http://jist.publikasiindonesia.id/%0AVirtual

Ivonesti, S., Fitriany, R., & Maghviroh, L. (2020). Pelatihan Outbound Untuk Meningkatkan Self Efficacy Pada Siswa Smk. *Jurnal Psikologi Malahayati*, *2*(2). https://doi.org/10.33024/jpm.v2i2.3026

Ivonesti1, S. (2018). pengaruh pelatihan keterampilan sosial untuk meningkatkan asertivitas korban bullying pada siswa sekolah dasar. *SemNasPsi (Seminar Nasional Psikologi)*, *1*(1), 87–112.

Judijanto, L., Late, M., & Djafri, N. (2024). Using Communication Technology in Education: Opportunities and Challenges. *Jurnal Komunikasi*, *2*(5), 369–382. http://jkm.my.id/index.php/komunikasi/article/view/71%0Ahttps://jkm.my.id/index.php/komunikasi/article/download/71/79

Junedi, B., & Sari, E. P. (2020). Penggunaan Multimedia Pembelajaran Interaktif terhadap Kemampuan Koneksi Matematis Siswa Kelas XI MIPA SMA. *Prisma*, *9*(1), 87. https://doi.org/https://doi.org/10.35194/jp.v9i1.915

Juntunen, M.-M., Kamau, S., Oikarainen, A., Koskenranta, M., Kuivila, H., Ropponen, P., & Mikkonen, K. (2024). The experiences and perceptions of nurse educators of culturally and linguistically diverse nursing students' competence development – Qualitative study. *Nurse Education Today*, *135*, 106100. https://doi.org/https://doi.org/10.1016/j.nedt.2024.106100

Maulana, B., Baso, I., & Suryani, A. (2023). Peningkatan+Efektivitas+Pembelajaran+Agama+Islam+Melalui+Pendekatan+Berbasis+Teknologi. *Islamic Education*, *1*(3), 499–505.

Ritonga, S., Zuhri, Z., Muis, M. A., Rahmatillah, N., Istiqomah, E. N., & Zakiah, N. (2022). Analysis Strategy Blended Learning of Prospective Islamic Teacher After Covid 19 Pandemic. *Edukasi Islami: Jurnal Pendidikan Islam*, *11*(02), 427–436. https://doi.org/10.30868/ei.v11i02.2510

Saifulloh, A., & Anung Priambodo. (2021). Jurnal Pendidikan Olahraga dan Kesehatan Volume 09 Nomor 02 Tahun 2021. *Ejournal.Unesa.Ac.Id*, *1*(1), 27–45.

Sujiwo, D. A. C., & A'yun, Q. (2020). Pengaruh Pemanfaatan E-learning Terhadap Motivasi Belajar Mahasiswa. *JUSTINDO (Jurnal Sistem Dan Teknologi Informasi Indonesia)*, *5*(2), 53–59. https://doi.org/10.32528/justindo.v5i2.3469

Sulisworo, D., Agustin, S. P., Iii, K., & Soepomo, J. P. (2017). Dampak Pembelajaran E-Learning Terhadap Motivasi Pada Pembelajaran Fisika Di Sekolah Kejuruan. *Berkala Fisika Indonesia : Jurnal Ilmiah Fisika, Pembelajaran Dan Aplikasinya*, *9*(1), 1–7. https://doi.org/10.12928/bfi-jifpa.v9i1.6658

Suryani, L., Seto, S. B., & Bantas, M. G. D. (2020). Hubungan Efikasi Diri dan Motivasi Belajar Terhadap Hasil Belajar Berbasis E-Learning pada Mahasiswa Program Studi Pendidikan Matematika Universitas Flores. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *6*(2), 275. https://doi.org/10.33394/jk.v6i2.2609

Suryawan, I. P. P., & Permana, D. (2020). Media Pembelajaran Online Berbasis Geogebra sebagai Upaya Meningkatkan Pemahaman Konsep Matematika. *Prisma*, *9*(1), 108. https://doi.org/https://doi.org/10.35194/jp.v9i1.929

Suwastika, I. W. K. (2018). Pengaruh E-Learning sebagai Salah Satu Media Pembelajaran Berbasis Teknologi Informasi Terhadap Motivasi Belajar Mahasiswa. *Jurnal Sistem Dan Informatika (JSI)*, *13*(1), 1–5.

Tampubolon, T., Sibarani, S., Zuhri, Efendi, Zakiah, N., Zaini, H., Dewi, S. V., Kusuma, J. W., Rafiqoh, S., & Mahuda, I. (2023). Ethnomathematics Learning to Improve Students' Understanding for Numeracy Concepts. *JPI (Jurnal Pendidikan Indonesia)*, *12*(2), 358–366. https://doi.org/10.23887/jpiundiksha.v12i2.60716

Vauhkonen, A., Saaranen, T., Cassar, M., Camilleri, M., Martín-Delgado, L., Haycock-Stuart, E., Solgajová, A., Elonen, I., Pasanen, M., Virtanen, H., & Salminen, L. (2024). Professional competence, personal occupational well-being, and mental workload of nurse educators – A cross-sectional study in four European countries. *Nurse Education Today*, *133*, 106069. https://doi.org/https://doi.org/10.1016/j.nedt.2023.106069

Zakiah, N., Irwanto, M., & Fianti, S. N. (2020). Pelatihan Pengolahan Data Berbasis Komputer Bagi Peneliti Pemula. *Jurnal Pengabdian UntukMu NegeRI*, *4*(2), 165–169. https://doi.org/10.37859/jpumri.v4i2.2073

Zuhri, .Dewi, S. V., .Zakiah, N., Efendi, Happy, N., & Yustitia, V. (2024). Comparative Analysis of Test for Improving Primary Students Mathematics Literacy Skills Through Project–Based Learning. *MIMBAR PGSD Undiksha*, *12*(1), 10–17. https://doi.org/10.23887/jjpgsd.v12i1.72284