

The Effectiveness of Digital Literacy and Uma Lengge Culture-Based Learning on Student Motivation

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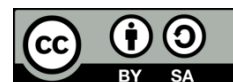
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ABSTRACT

This study aims to determine the effectiveness of digital literacy and Uma Lengge culture-based learning on student motivation. The study employed a quantitative method using a quasi-experimental design involving an experimental group and a control group. The research subjects consisted of 40 fifth-grade elementary school students. The research instrument utilized a 15-item Likert scale questionnaire covering the variables of digital literacy, Uma Lengge culture-based learning, and student motivation. Data collection was conducted through pre-tests and post-tests, then analyzed using IBM SPSS via descriptive statistical tests, regression tests, ANOVA tests, and t-tests. The results showed that the digital literacy variable had a mean score of 74.00, Uma Lengge culture-based learning scored 76.20, and student motivation scored 80.80. The correlation coefficient test results showed an R value of 0.350 with a significance level of 0.089, indicating that the relationship between the two variables and student motivation falls into the low to moderate category and is not yet statistically significant simultaneously. Uma Lengge culture-based learning has a more dominant influence than digital literacy in enhancing student motivation. This study demonstrates that the integration of digital literacy and local culture can create learning that is more contextual, engaging, and relevant for students.

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1. INTRODUCTION

Educational developments in the digital age are driving a transformation toward more active, critical, and adaptive learning through the use of digital literacy and approaches rooted in local culture to boost student motivation. Digital literacy not only facilitates access to information but also fosters intrinsic motivation, independent learning, and improved academic outcomes [1]. The use of digital tools in learning also creates a more engaging learning environment and increases student engagement [2]. The integration of socio-cultural values, such as local wisdom, makes the material more

relevant to students' lives. At the same time, teachers play a crucial role in designing learning experiences tailored to the characteristics of the digital generation and helping students process information effectively [3]. Challenges such as limited access to technology and disparities in digital proficiency still need to be addressed to ensure optimal implementation.

Digital literacy encompasses essential skills for interacting with technology, such as technical proficiency, critical thinking, and ethical behavior [4]. These skills enable students to access, evaluate, and utilize information effectively. Its main components include technical proficiency in using digital devices, critical thinking skills to assess the credibility of information, and information management in searching for and evaluating resources that support academic success [5]. Challenges such as limited access to technology and resources can hinder the development of digital literacy [6], while reliance on technology also has the potential to diminish students' critical thinking skills [7].

The integration of Uma Lengge culture into learning enriches education by incorporating Bima cultural values such as mutual cooperation and environmental stewardship into the curriculum [8]. Local wisdom, such as traditions and beliefs, makes the material more relevant and meaningful to students [9]. Culturally-based learning also enhances students' motivation, engagement, and pride in their cultural heritage [10], [11]. Although there are challenges such as limited teacher training, collaboration between educators and the community can help address them [12]. This integration simultaneously preserves cultural identity, mitigates the impacts of globalization, and maintains a balance with global perspectives to support student development in an interconnected era.

Based on previous research [13], [14], [15], [16], [17], [18], it is evident that the implementation of digital literacy at the Kurnia Foundation Community Learning Center (PKBM) has been effective in enhancing digital competencies. However, this has not been matched by innovation and creativity among the students, resulting in challenges in the optimal utilization of technology. Nuraihan et al. [19] explain that the Uma Lengge Mengajar Community Reading Park plays a role in increasing children's interest in reading in Bima Regency through the provision of human resources, a literacy-friendly environment, creative and innovative programs, and community partnerships, thereby making a positive contribution to the improvement of reading interest.

Nuriansyah et al. [20] found that the use of culture-based digital media increased students' digital literacy by up to 42% and their understanding of mathematical concepts by up to 38%, and contributed to the preservation of local cultural values, increased learning motivation, and strengthened students' character. Phippen [21] explain that digital literacy has a positive and significant effect on learning motivation (t -calculated 3.319 > t -table 2.024; Sig. 0.002 < 0.05), as well as reading interest (t -calculated 4.007 > t -table 2.024; Sig. 0.000 < 0.05), and simultaneously, both have a significant effect on students' learning motivation (F -calculated 28.902 > F -table 3.24; Sig. 0.000 < 0.05) Purnama et al. [22] also revealed that culture-based digital media increases digital literacy by up to 42% and mathematical concept understanding by up to 38%, while simultaneously supporting cultural preservation, learning motivation, and the strengthening of students' character.

Adam et al. [23] show that the implementation of learning improved from 70% in Cycle I to 87% in Cycle II following the implementation of improvements, with students becoming increasingly active. There was also an increase in the minimum competency standard (KKM) achievement, from 60% (18 students) to 87% (26 students). Meanwhile, Safinaturrahmah [24] confirm that the school has implemented digital literacy in learning and integrated technologies such as Zoom, Google Classroom, WhatsApp Groups, and YouTube, though not yet to their full potential and has been able to foster a culture of reading among students during the pandemic [25].

This study aims to describe the effectiveness of digital literacy and Uma Lengge culture-based learning on student motivation in Bima and to identify the factors that influence student motivation. This study addresses the gap in the limited number of studies that integrate digital literacy and local culture into a single learning model to examine student learning motivation, as previous research has tended to separate these two areas, thus failing to provide a comprehensive picture of their interrelationship in the learning process. The novelty of this study lies in the integration of digital literacy with Uma Lengge culture-based learning into a single structured approach and its empirical testing in the local context of Bima, resulting in a contextual learning approach that simultaneously combines technological mastery and the reinforcement of local cultural values.

2. METHOD

The study employed a quantitative method using a quasi-experimental design that involved an experimental group and a control group. The experimental group received instruction that integrated digital literacy with the Uma Lengge culture, while the control group followed conventional instruction. The study also included a measurement of students' responses to the use of technology in learning, with an additional sample of 40 fifth-grade elementary school students. The research instrument consisted of a questionnaire covering three sections: digital literacy, Uma Lengge culture-based learning, and student motivation, as well as 15 questions to measure student responses to the use of technology [26]. Data were collected through pre-tests and post-tests to observe changes in student motivation following the intervention. The research sample comprised elementary school students in the Bima region, selected using purposive sampling.

Data analysis will be conducted using IBM SPSS software to examine the effects of digital literacy and Uma Lengge culture-based learning on student motivation. Prior to conducting the analysis, validity and reliability tests will be performed to ensure the accuracy of the instruments. A normality test will be used to examine the data distribution, while a t-test will be used to compare differences in motivation between the experimental and control groups after the intervention [27]. Multiple linear regression will be used to identify the simultaneous effects of digital literacy, Uma Lengge culture-based learning, and student motivation. Analysis using ANCOVA (Analysis of Covariance) will be conducted to control for differences in baseline variables (pre-test) between the two groups and to measure changes in student motivation more accurately. The results of this study can provide insights into the effectiveness of integrating digital literacy and Uma Lengge culture in enhancing student learning motivation [28].

3. RESULTS AND DISCUSSION

The data collection process in this study was conducted systematically to obtain accurate information regarding the effectiveness of digital literacy and Uma Lengge culture-based learning on student motivation. Data collection was carried out by administering pre-tests and post-tests to the experimental and control groups. The research instruments consisted of multiple-choice questions and questionnaires designed based on indicators of digital literacy, Uma Lengge culture-based learning, and student motivation. The pre-test was administered before the intervention to assess students' initial abilities. In contrast, the post-test was administered after the learning process to determine changes in student motivation following the implementation of digital literacy and Uma Lengge culture-based learning. The data obtained were then analyzed using IBM SPSS to determine the effectiveness of the intervention.

Table 1. Descriptive Statistics

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Digital Literacy	40	56	100	74.00	11.131
<i>Uma Lengge</i> Culture-Based Learning	40	64	100	76.20	9.712
Student Motivation	40	72	100	80.80	6.851
Valid N (listwise)	40				

Based on the results of the descriptive statistical analysis, it was found that the number of respondents in this study was 40 students. The digital literacy variable had a minimum score of 56 and a maximum of 100, with a mean of 74.00 and a standard deviation of 11.131. These results indicate that students' digital literacy levels fall into the "fairly good" category, although there are still differences in ability among students, as evidenced by the relatively high standard deviation. The Uma Lengge culture-based learning variable had a minimum score of 64 and a maximum of 100, with a mean of 76.20 and a standard deviation of 9.712. These data indicate that the implementation of Uma Lengge culture-based learning falls into the "good" category and is well-received by the majority of students in the learning process.

The student motivation variable scored a minimum of 72 and a maximum of 100, with a mean of 80.80 and a standard deviation of 6.851. This mean score indicates that student motivation falls into the high category. The lower standard deviation compared to other variables suggests that the level of student motivation tends to be more evenly distributed among the respondents. These results show that digital literacy and Uma Lengge culture-based learning have a positive correlation with increased student motivation. The integration of digital technology with local cultural values can create learning that is more engaging, contextual, and relevant to students' lives, thereby increasing student engagement and enthusiasm for learning in the learning process.

Table 2. Model Summary

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Digital Literacy	40	56	100	74.00	11.131
Uma Lengge Culture-Based Learning	40	64	100	76.20	9.712
Student Motivation	40	72	100	80.80	6.851
Valid N (listwise)	40				

Based on the analysis results in the Model Summary table, a correlation coefficient (R) of 0.350 was obtained. This value indicates that the relationship between the variables of digital literacy and Uma Lengge culture-based learning and student motivation falls into the low-to-moderate category. The R-Square value of 0.122 indicates that 12.2% of the variation in student motivation can be explained by the variables of digital literacy and Uma Lengge culture-based learning, while the remaining 87.8% is influenced by other factors outside the scope of this study. The Adjusted R-Square value of 0.075 indicates that after adjusting for the number of variables and the study sample, the contribution of the two independent variables to student motivation is 7.5%. The Standard Error of the Estimate value of 6.589 indicates the level of prediction error of the regression model regarding the student motivation variable.

The results indicate that digital literacy and Uma Lengge culture-based learning contribute to student motivation, although their influence remains relatively low. This finding may be influenced by various other factors not examined in this study, such as family environment, teaching methods, learning facilities, students' interest in learning, and their socioeconomic status. The low value of the coefficient of determination also indicates that student motivation is influenced not only by digital literacy and local culture-based learning but also by other internal and external factors. Nevertheless, the integration of digital literacy and Uma Lengge culture continues to have a positive impact in creating learning that is more engaging, contextual, and relevant to students' lives, thereby helping to increase student engagement in the learning process.

Table 3. ANOVA^a

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	224.156	2	112.078	2.582	.089 ^b
	Residual	1606.244	37	43.412		
	Total	1830.400	39			

a. Dependent Variable: Student Motivation

b. Predictors: (Constant), Uma Lengge Culture-Based Learning, Digital Literacy

Based on the results of the ANOVA test, the calculated F-value was 2.582 with a significance level (Sig.) of 0.089. This significance level is greater than the significance threshold of 0.05 ($0.089 > 0.05$), so it can be concluded that the variables of digital literacy and Uma Lengge culture-based learning do not simultaneously have a significant effect on student motivation. The Sum of Squares value in the regression of 224.156 indicates the extent of variation in student motivation that can be explained by the two independent variables, while the residual value of 1606.244 indicates that there is still a larger variation

influenced by factors outside the scope of this study. The regression model used in this study has not been able to optimally explain the influence of the independent variables on student motivation.

The results of this study indicate that although digital literacy and Uma Lengge culture-based learning are related to student motivation, their combined effect is not yet strong enough to produce significant results. This situation may be influenced by various other factors, such as the learning environment, the teaching methods used by teachers, family support, educational facilities, and the diverse characteristics of students. The low level of simultaneous influence may also be due to the limited time allocated for implementing culture-based learning and digital literacy, preventing students from fully adapting to the learning process. Although the test results indicate a non-significant influence, the integration of digital literacy and Uma Lengge culture still holds potential for creating learning experiences that are more contextual, engaging, and relevant to students' lives.

Table 4. Coefficients^a

		Coefficients ^a		Standardized Coefficients		
Model		Unstandardized Coefficients		Beta	t	Sig.
		B	Std. Error			
1	(Constant)	60.232	9.575		6.291	.000
	Digital Literacy	.045	.100	.074	.456	.651
	Uma Lengge Culture-Based Learning	.226	.114	.320	1.978	.055

a. Dependent Variable: Student Motivation

Based on the results of the regression coefficient test, a constant value of 60.232 was obtained, indicating that if the variables of digital literacy and Uma Lengge culture-based learning are held constant, the value of student motivation is 60.232. The digital literacy variable obtained a regression coefficient value of 0.045 with a significance value of 0.651. This significance value is greater than 0.05 ($0.651 > 0.05$), so it can be concluded that digital literacy does not have a significant effect on student motivation. The Uma Lengge culture-based learning variable obtained a regression coefficient of 0.226 with a significance value of 0.055. This value indicates that Uma Lengge culture-based learning has a positive influence on student motivation, although the effect is not yet significant because the significance value is still slightly above the 0.05 significance level.

The results of this study indicate that Uma Lengge culture-based learning has a greater impact on student motivation than digital literacy. This is evident from the beta coefficient value of Uma Lengge culture-based learning, which is 0.320, while that of digital literacy is only 0.074. This indicates that a learning approach that integrates local culture is better able to create learning experiences that are relevant and closely related to students' lives, thereby increasing their engagement and enthusiasm for learning. The low influence of digital literacy may be influenced by limited access to technology, uneven proficiency in using digital media, and suboptimal utilization of technology in the learning

process. Both variables still show a positive relationship with student motivation, thus holding potential for development to support more innovative and contextual learning.

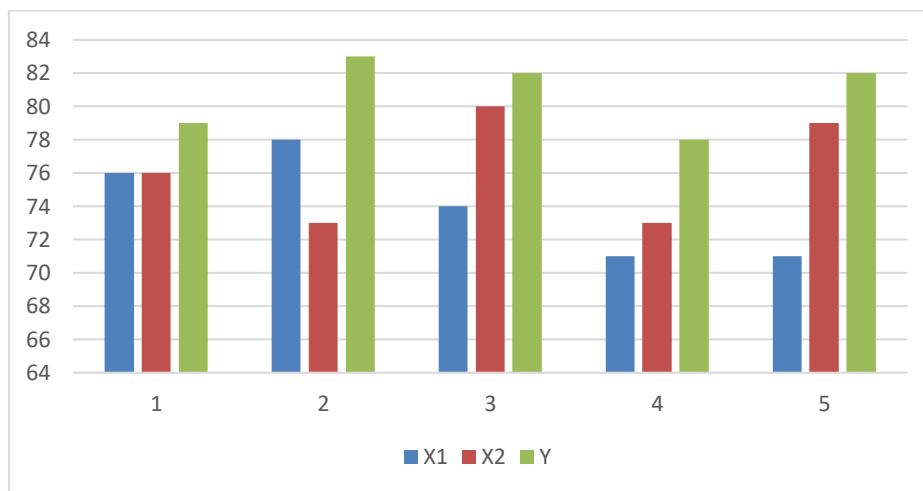


Figure 1. Bar chart of variables X1, X2, and Y

Based on Figure 1 presented, there are differences in the values of the digital literacy variable (X1), Uma Lengge culture-based learning (X2), and student motivation (Y) across the five measurement indicators. The student motivation variable (Y) shows the highest values compared to the other variables, with a top score of 83 on the second indicator and scores of 82 on the third and fifth indicators. The Uma Lengge culture-based learning variable (X2) also shows fairly high values, particularly on the third and fifth indicators with scores of 80 and 79, respectively. The digital literacy variable (X1) yields relatively lower values compared to the other variables, with the highest score of 78 on the second indicator. These results indicate that Uma Lengge culture-based learning contributes more significantly to enhancing student motivation than digital literacy. This suggests that learning that integrates local culture can create a more contextual learning environment closely aligned with students' lives, thereby increasing their engagement in the learning process.

The use of learning materials based on local culture can increase students' motivation to learn and strengthen their cultural identity [3]. Digital literacy has a positive influence on students' motivation to learn, although its impact is not as significant as that of contextual learning based on local culture. Uma Lengge's culture-based learning demonstrates a more dominant influence compared to digital literacy, as students find it easier to understand learning materials linked to their daily culture and environment. Integrating local culture into learning can enhance students' sense of pride, engagement, and enthusiasm for learning [1]. This study reinforces the findings of previous research that a combination of digital literacy and local culture-based learning can have a positive impact on student motivation, particularly in creating more relevant and meaningful learning experiences.

4. CONCLUSION

Based on the data analysis results, the r-value was found to be 0.350, and the Sig value was 0.089. These results indicate that digital literacy and Uma Lengge culture-based learning have a positive relationship with student motivation, although they do not yet show a significant simultaneous effect because the significance level is greater than 0.05. Uma Lengge culture-based learning exerts a more dominant influence than digital literacy in enhancing student motivation, as it creates a learning process that is more contextual, relevant, and closely aligned with students' daily lives. The integration of digital literacy and local culture continues to make a positive contribution to enhancing student engagement, learning enthusiasm, and character development in the digital age. The findings of this study confirm that local culture-based learning combined with the use of digital technology can serve as an innovative alternative learning strategy to enhance student motivation. It is recommended to include a larger sample size, incorporate additional variables that influence student learning motivation, and develop digital learning media based on local culture to achieve more comprehensive and optimal research results.

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