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Research Article

THE APPLICATION OF *E*-NOKEN AS A DIGITAL LITERACY MEDIA IN IMPROVING LANGUANGE ABILITY AND STRENGTHENING CHARACTER IN STUDENTS AT SMA OIKUMENE KOTA SORONG

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Abstract

This study aims to examine the effectiveness of implementing *e-Noken*, a digital literacy medium based on local Papuan culture, in improving the language ability and character building of students at SMA Oikumene Kota Sorong. The study used a pre experimental one group pretest posttest design with a mixed methods approach, involving 32 students as participants through purposive sampling. The research instruments included language ability tests, character strengthening questionnaires, participatory observation, and semi-structured interviews. Quantitative analysis results showed a significant increase in language ability, with an average pre-test score of 38.44 and a post-test score of 77.66, as well as a gain of 0.7658 (high category). Questionnaire analysis showed participants' positive perceptions of the implementation of *e-Noken*, both in terms of ease of use and its impact on character building. The interview results reinforced these findings, showing that *e-Noken* encourages discipline, responsibility, and appreciation for local culture. Although the direct correlation between the implementation of *e-Noken* and the variables of language ability and character building was not significant, there was a very strong relationship between language ability and character building ($r = 0.930$, $p < 0.01$). This study confirms that the integration of local culture-based digital literacy media has a dual impact: it improves academic ability while instilling character values, in line with 21st-century educational goals and learning principles.

Keywords: *e-Noken*, Digital Literacy, Local Culture, Language Ability, Charcter Building.

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INTRODUCTION

The development of information and communication technology is now progressing rapidly and has become a dominant force that influences almost all aspects of human life, including education, which has an impact on the way we communicate and interact socially (Mulyono et al., 2025). This digital transformation not only creates new opportunities in interpersonal communication but also has a significant impact on how we learn and teach. The use of devices such as laptops, tablets, and smartphones has changed the perspective on education, providing a more interactive and integrated learning experience (Sujana et al., 2025). Technology based educational innovations have proven to have great potential in improving the quality of learning, student engagement, and academic achievement.

In the context of education, digital literacy is a key skill that both students and teachers must possess (Hodelín-Tablada, 2025). Digital literacy encompasses not only the ability to access information, but also the ability to understand, evaluate, and use information effectively in learning and communication (Minsih et al., 2025). This is particularly important in the era of Merdeka Belajar (Freedom of Learning), which emphasizes the development of students' independent, creative, and critical competencies (Mutia et al., 2025). In addition to digital skills, character building is an equally important aspect to ensure that the younger generation is able to balance technological intelligence and social intelligence in facing various global challenges.

However, the reality on the ground still shows a gap between digital literacy skills and the internalization of character values. A study reported that 96.4% of respondents access social media every day; 96.5% feel stressed by social media content; 78.2% lose concentration; 69.1% lose self-control; and 43.6% feel anxious if they do not access social media (Ilat et al., 2023). These findings indicate that digital literacy has not been utilized productively and can even have a negative impact on students' character. This situation is even more apparent in Southwest Papua, particularly in the city of Sorong, which still faces low literacy rates. Based on data from the Central Statistics Agency (2023), 38.28% of the population only has limited reading comprehension skills, while 42.47% cannot read at all. The Digital Society Index (IMDI) for West Papua has only reached 35.14 (BPSDMP Kominfo, 2023), a figure that is relatively low compared to the national average. This condition emphasizes the need for digital-based educational interventions to improve digital literacy while instilling character values.

SMA Oikumene Kota Sorong is a private school under the Yopindo Foundation, with the majority of its students being Papuan children. The school has 94 students, professional teachers, and adequate learning facilities. Learning activities take place every Monday to Friday, from 07:00 to 14:00 WIT, with the latest curriculum being implemented. With this potential, SMA Oikumene Kota Sorong is the right location for the implementation of digital-based learning innovations that also strengthen student character.

Although digital literacy and character education have been extensively researched, most digital learning media are still general in nature or based on global or national content, without integrating local Papuan wisdom (Awang Abu Bakar et al., 2025). The integration of local culture has been proven effective in strengthening students' identity, character, and motivation to learn (Dardiri et al., 2025). Therefore, innovation in the form of digital literacy media based on local Papuan culture is needed, namely *e-Noken* (Palittin et al., 2025). Noken, as a traditional bag of the Papuan people, is rich in philosophical meanings such as togetherness, responsibility, and hard work (Nur et al., 2025). The digitalization of noken into *e-Noken* allows this media to serve a dual function: as a means of language learning and as a tool for internalizing character values.

Based on the description above, this study aims to examine the effectiveness of implementing *e-Noken* as a digital literacy medium in improving the language ability and strengthening the character of students at SMA Oikumene Kota Sorong (Faridli et al., 2025). This study uses a pre-experimental one-group pretest-posttest design, which allows for the measurement of changes in language ability and character before and after the implementation of *e-Noken* (Fajariani et al., 2025). Thus, this study is expected to contribute theoretically to the literature on local culture-based digital literacy and provide practical implications for education in areas with low literacy rates.

RESEARCH METHOD

The research was conducted using a mixed method in a pre-experimental one-group pretest-posttest design model (de Sousa, 2025). This design was chosen because it allowed researchers to measure changes in students' language ability and character building before and after the implementation of *e-Noken* (Wang et al., 2025). According to Creswell in regarding research design, the one-group pretest-posttest is one of the approaches often used in intervention research (Asrori, Asy'arie, Ma'ruf, et al., 2025). This design involves initial measurement (pretest) of the variables being studied, followed by the provision of intervention, which is then re-measured (posttest) to assess the changes that have occurred in the same group (Arifin et al., 2025). The second model is qualitative in the form of interviews with the aim of exploring information from students regarding the effectiveness of using *e-Noken* itself, which has an impact on improving students' language ability and character building.

The participants in this study were students of SMA Oikumene Kota Sorong. The sampling technique used was purposive sampling, which is the selection of participants based on certain criteria according to the researcher's needs in conducting the research (Del-Moral-Pérez et al., 2025). This technique is considered effective, especially in educational research with a limited and specific population, because it allows researchers to focus on individuals or groups who have rich and relevant information.

This study was conducted at SMA Oikumene in Sorong City with the aim of assessing the effect of using *e-Noken*, a digital literacy medium based on local Papuan culture, on students' language ability and character building. The research procedure began with a pretest to measure students' initial abilities before the intervention (Umar et al., 2025). The language ability test covered vocabulary mastery, text comprehension, and narrative writing skills, while character building was measured through questionnaires and observation sheets.

After the pretest, an intervention was carried out using *e-Noken* as a learning medium. Language learning focused on vocabulary development, narrative text comprehension, and writing practice through digital applications (Kravchenko et al., 2025). Meanwhile, character building was carried out through the introduction of Noken cultural values, such as togetherness, responsibility, and hard work, which were internalized by students through interactive content and personal reflection.

After the intervention was completed, the researchers conducted a post-test to assess changes in students' language ability and character. In addition, to gain a deeper understanding of the students' experiences, semi-structured interviews were conducted with 10 randomly selected students. These interviews were supplemented by a questionnaire distributed to all 32 students to evaluate their perceptions, motivation, and level of acceptance of the use of *e-Noken* digital media.

During the learning process, researchers also observed student activities, noting their level of participation, engagement, and response to *e-Noken* based learning (Surada et al., 2025). These observations provided additional qualitative data that reinforced the quantitative measurements, enabling a comprehensive analysis of the effectiveness of this learning medium on students' language ability and character building (Siregar et al., 2025). This combination

was used to provide a more holistic understanding of digital literacy and its impact on learning. This approach allowed researchers to explore not only students' digital skills, but also their perceptions, attitudes, and social contexts that influence the use of digital technology in education.

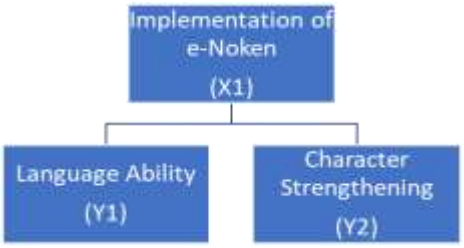

Figure 1. The Conceptual Framework

This conceptual framework diagram illustrates the relationship between the implementation of *e-Noken* and two important variables in learning, namely language skills and character building in students. The independent variable in this study is the implementation of *e-Noken* (X1), which is the main focus of the study to see how this digital media is applied in daily learning activities. The two dependent variables influenced by the implementation of *e-Noken* are language ability (Y1) and character building (Y2). Language ability include aspects such as vocabulary improvement, grammar comprehension, and writing and speaking skills in English. Meanwhile, character building includes the development of discipline, responsibility, independence, and other positive attitudes that can emerge through the use of *e-Noken* as a learning medium. Thus, this framework shows that the implementation of *e-Noken* is expected to have a direct positive effect on students' language ability and character building. This study aims to analyze the extent to which the use of *e-Noken* can improve these two aspects. All instruments were tested for validity and reliability before use. The questionnaire was tested for reliability using Cronbach's alpha ≥ 0.7, in accordance with the standard (Hair et al., 2019), to ensure the consistency and reliability of the measurement of variables Y1 and Y2. With this arrangement, variable X (*e-Noken* implementation) acts as an intervention that is expected to influence variables Y1 (language ability) and Y2 (character building), so that the causal relationship between the intervention and learning outcomes can be analyzed.

The data in this study were analyzed using quantitative and qualitative approaches, in accordance with the mixed-methods principle, which allows for a comprehensive understanding of the effectiveness of *e-Noken* in improving students' language ability and character building (Mackiewicz, 2018).

A quantitative analysis was conducted on the pre-test and post-test data collected to measure changes in language ability (Y1) and character building (Y2) after the implementation of *e-Noken*. Prior to analysis, the data was tested for normality using Shapiro Wilk, as normality testing is important for determining the appropriate statistical method (Schober & Vetter, 2020). If the data were not normally distributed, non-parametric tests were used. To test the difference between pretest and posttest scores, the researchers used the Wilcoxon Signed-Rank test, which is considered effective for ordinal or interval data that do not meet the assumption of normality. This analysis showed whether the *e-Noken* intervention resulted in significant changes in students' language ability and character building. In addition, the relationship between the implementation of *e-Noken* (X) and learning outcomes (Y1 and Y2) was analysed using Spearman's rank correlation, which aims to assess correlations in non-parametric data (Henry & Mbasani, 2016). This analysis provides an overview of the strength and direction of the relationship between the implementation of *e-Noken* and improvements in students' language ability and character. Furthermore, descriptive statistical calculations, such as the mean, median, standard deviation, and frequency distribution of pretest and posttest

scores, are presented to provide an initial overview of students' abilities before and after the intervention, as well as to help interpret the results of inferential tests.

In the context of qualitative analysis, to gain an in depth understanding, this study used semi-structured interviews and participatory observation. The interviews were analyzed using a thematic approach, following the procedures outlined by Braun & Clarke (2006), which included transcribing the interviews, initial coding, grouping themes, and compiling final themes that described the students' experiences, perceptions of *e-Noken*, and internalization of character values (Asrori, Asy'arie, Yusup Sofian, et al., 2025). This research process was inseparable from observation. Observations were conducted to assess students' active participation, collaboration skills, and the application of character values taught through *e-Noken*, in accordance with the principle that participatory observation helps to assess students' real behavior in context.

RESULTS AND DISCUSSION

The research conducted on SMA Oikumene students in Sorong City was presented through data obtained from various instruments, including tests, questionnaires, and interviews. This research was conducted to determine the effectiveness of using *e-Noken* in digital literacy education in improving students' language ability and strengthening their character.

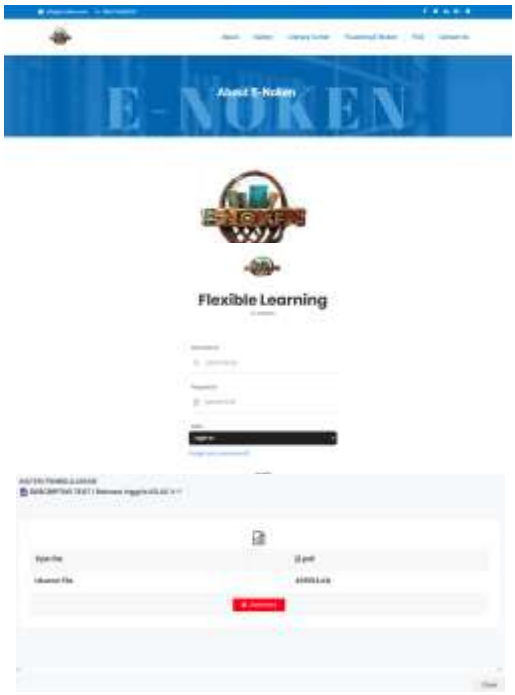

Figure 2. The *flearning e-Noken* Page

The *e-Noken* page itself provides a variety of information on local wisdom that can be accessed by students. Teachers can access teaching materials for their students from the flexible learning submenu. Students can receive teaching materials delivered by teachers and assignments given by teachers to students. Students can then complete the assignments and submit them through the page.

Quantitative analysis was carried out on the research findings in the form of pre-tests and post-tests, which were then followed by questionnaires distributed to students to fill out.

Table 1. Descriptive Statistic Test of Test Results

Variable	N	Min	Max	Mean	SD
Pre test	32	25	60	38.44	10.27

Post test	32	65	90	77.66	7.18
N-Gain	32	0.50	1.00	0.7658	0.13

Based on descriptive analysis, participants' pre-test scores ranged from a minimum of 25 to a maximum of 60, with an average of 38.44 and a standard deviation of 10.27. These results indicate considerable variation in initial ability among participants, with some participants scoring low and others scoring relatively higher. After the intervention, the post-test scores increased significantly, ranging from 65 to 90, with an average of 77.66 and a standard deviation of 7.18. The higher score range compared to the pre-test and the smaller standard deviation indicate that the participants' abilities improved and the results were more evenly distributed. The normalized gain analysis showed that participants' scores ranged from 0.50 to 1.00, with an average of 0.7658 and a standard deviation of 0.13. This indicates that almost all participants experienced a significant improvement, with relatively small variations in the results. Based on Hake's criteria, the average gain falls into the high category, proving that the intervention was effective in relatively improving participants' abilities.

Table 2. Normality Test (Kolmogorov-Smirnov and Shapiro-wilk)

Variable	K.S Sig.	SW Sig.
Pre test	0.126	0.041
Post test	0.005	0.038
N-Gain	0.200	0.227

Based on the results of normality tests using Kolmogorov-Smirnov and Shapiro-Wilk, information was obtained regarding the distribution of pre-test, post-test, and gain data from 32 participants. For the pre-test data, the Shapiro-Wilk significance value of 0.041 (< 0.05) indicates that the pre-test data is not normally distributed. Meanwhile, for the post-test data, both the Kolmogorov-Smirnov test (Sig. = 0.005) and the Shapiro-Wilk test (Sig. = 0.038) indicate that the post-test data is not normally distributed. Meanwhile, the ngain analysis showed a significance value of 0.227 in the Shapiro-Wilk test and 0.200 in the Kolmogorov-Smirnov test, both of which are greater than 0.05. This indicates that the ngain data is normally distributed. Thus, it can be concluded that the pre-test and post-test data do not meet the normality assumption, while the ngain data meet the normality assumption. This information will form the basis for selecting the appropriate statistical test in further analysis.

Based on the results of the previous normality test, the pre-test and post-test data were not normally distributed, so the analysis of the difference in values between the pre-test and post-test was conducted using the non-parametric Wilcoxon Signed Ranks Test. The Wilcoxon test results showed a Z value of -4.967 with a significance value of Asymp. Sig. (2-tailed) = 0.000. A significance value of less than 0.05 indicates a significant difference between the pre-test and post-test scores. In other words, the intervention provided was proven to significantly improve the participants' abilities.

Based on the results of the analysis, it can be concluded that the participants' abilities improved significantly after the intervention. The participants' average score increased from 38.44 in the pre-test to 77.66 in the post-test. In addition to the increase in the average score, the higher range of post-test scores and smaller standard deviation from the pre-test implementation indicate that the participants' abilities became more evenly distributed after the intervention. The results of the Wilcoxon Signed Ranks Test showed a Z value of -4.967 with a significance value of Asymp. Sig. (2-tailed) = 0.000 (< 0.05), confirming that the difference between the pre-test and post-test did not occur by chance but was statistically significant. In other words, the intervention provided proved to be effective in significantly improving the participants' abilities. Overall, these findings indicate that all participants experienced a significant improvement in their abilities, both in terms of average and consistency of results among participants. This improvement is also reinforced by the gain analysis, which falls into

the high category, so that the intervention can be said to have succeeded in optimally improving the participants' abilities.

In addition to pre-test and post-test data, this study used a questionnaire to determine students' perceptions of *e-Noken* usage, language ability, and character building. The questionnaire consisted of three main components:1) X1 (*e-Noken* implementation), 2) Y1 (language ability), and 3) Y2 (character building). Each variable was measured through six statements, resulting in a total of 18 statements. Participants were given the opportunity to respond using a 1-5 Likert scale with the following categories: 1) Strongly Disagree, 2) Disagree, 3) Neutral, 4) Agree, and 5) Strongly Agree.

The initial analysis was conducted by calculating the average score, distribution, and percentage of responses for each statement. The aim was to obtain an initial overview of:

1. X1 (*e-Noken* implementation)
   How participants assessed the ease of use, interactivity, and effectiveness of the *e-Noken* application in supporting learning.
2. Y1 (Language ability)
   The extent to which participants feel their language ability have improved and been assisted through the use of *e-Noken*.
3. Y2 (Character building)
   Participants' perceptions of character building, such as discipline, responsibility, and positive attitudes, while using *e-Noken*.

Preliminary analysis results have shown that this measure serves as additional evidence supporting the quantitative findings from the pre-test, post-test, and gain scores. Thus, this instrument not only assesses the effectiveness of *e-Noken* implementation, but also provides context regarding the impact of the application on participants' language ability and character building.

Table 3. Reliability Cronbach's Alpha

Variables	Items	Cronbach's Alpha
X1 *e-Noken* Implementation	6	0.930
Y1 Language Ability	6	0.899
Y2 Character Building	6	0.901

Based on the reliability test results in Table 2, all research variables, X1 (*e-Noken* Implementation), Y1 (Language Ability), and Y2 (Character Development), showed Cronbach's Alpha values above 0.70, which is the minimum threshold for declaring an instrument reliable. Variable X1 obtained a value of 0.930, Y1 0.899, and Y2 0.901. These three values fall into the high to very high reliability category, thus concluding that all statement items in each variable have strong internal consistency. Therefore, the instrument used in this study is deemed reliable and suitable for further measurement.

Table 4. Pearson Correlation among Variables

Variables	X_Total	Y1_Total	Y2_Total
X1_Total	1	0.123 (p=0.503)	0.137 (p=0.456)
Y1_Total	0.123 (p=0.503)	1	0.930 (p=0.000*)
Y2_Total	0.137 (p=0.456)	0.930 (p=0.000*)	1

Based on the results of the Pearson correlation test, the variable X_total with Y1_total has a correlation value of 0.123 with a significance of 0.503, while the correlation between X_total and Y2_total is 0.137 with a significance of 0.456. Both results show a very weak and insignificant positive relationship because the significance value is greater than 0.05. Meanwhile, the correlation between Y1_total and Y2_total shows a value of 0.930 with a

significance of 0.000, which means there is a very strong, positive, and significant relationship at a 99% confidence level. Thus, it can be concluded that X_total is not significantly related to Y1 or Y2, but Y1 has a close and significant relationship with Y2.

Qualitative analysis was conducted on student representatives in the form of in-depth interviews. This study also used interviews to obtain in-depth information about students' perceptions of the implementation of *e-Noken*, its impact on language ability, and character building. Interviews were conducted with ten student representatives, with each indicator consisting of three questions. Based on the interview results, most participants stated that their experience using *e-Noken* was quite enjoyable and helpful in their daily learning activities. Students mentioned that *e-Noken* provided an interactive learning experience, allowing them to access materials at any time and facilitating the independent learning process. The most helpful features according to respondents were the exercises, material summaries, vocabulary explanations, and task reminders, which helped students understand the material and manage their tasks more efficiently. However, several obstacles were also found, such as slow internet connection, mobile phones that easily froze, difficulty logging in at night, and not being familiar with all the features of the application. This shows that although the implementation of *e-Noken* is quite effective, attention needs to be paid to technical factors and user familiarization. Overall, the interviews show that *e-Noken* plays an important role in supporting student learning, especially in terms of ease of access to materials, independent practice, and strengthening conceptual understanding.

The interview results showed that the use of *e-Noken* had a positive effect on students' English language ability. Most students reported acquiring new vocabulary, such as responsibility, environment, and achievement, through exercises and reading on *e-Noken*. In addition, students became more confident in writing and speaking English, for example, by making simple sentences, writing short stories, or discussing with friends. *e-Noken* also helps students understand English texts by providing translations, explanations of difficult words, texts appropriate to their level, and exercises that support comprehension. Overall, the interviews show that *e-Noken* not only increases vocabulary, but also boosts students' confidence in using English and facilitates text comprehension.

Based on interviews with students, the use of *e-Noken* has been proven to strengthen character in several aspects. First, *e-Noken* helps students become more disciplined, as reminders, independent study schedules, and assignment deadlines motivate them to regularly open the application and complete exercises. Second, this application fosters a sense of responsibility. Students feel that they must do their assignments themselves, be thorough in submitting their answers, and take responsibility for the results they obtain, because the online system displays the results transparently. Third, *e-Noken* increases appreciation for Papuan culture through material on dance, symbols, folklore, and local ornaments. This makes students more aware, proud, and motivated to preserve and introduce Papuan culture to their friends. Overall, the interviews show that *e-Noken* not only supports academic aspects but also strengthens students' character through discipline, responsibility, and appreciation for local culture.

The results of the study indicate that the implementation of *e-Noken* as a medium for digital literacy based on local Papuan culture has a significant positive impact on the language ability and character building of students at SMA Oikumene Kota Sorong. Quantitative analysis shows an increase in participants' average scores from 38.44 on the pre-test to 77.66 on the post-test, with an average gain of 0.7658, which is classified as high according to Hake's (1999) criteria in (Wahab et al., 2021). These results indicate that the *e-Noken* intervention is effective in improving students' language ability, both in terms of vocabulary mastery, text comprehension, and writing and speaking skills. This improvement is in line with the findings of a study by (Yunus et al., 2013), which states that the use of information technology in

learning increases student engagement, flexibility of access to materials, and supports the effective development of language ability.

In addition, qualitative findings from in-depth interviews reinforce quantitative findings. Students reported that *e-Noken* provides an interactive learning experience, allowing them to access materials at any time and facilitating the independent learning process. Features such as practice questions, material summaries, vocabulary explanations, and task reminders have been shown to help students understand the material more deeply and manage tasks in a more structured manner. These findings are in line with the principles of multimedia learning proposed by (Giday & Perumal, 2024), which state that presenting material through a combination of text, images, and interactive activities can improve students' understanding and retention of concepts. In other words, *e-Noken* not only provides content, but also facilitates active learning and self-reflection, enabling students to build a more holistic understanding of concepts.

The results of the study also show a positive effect on strengthening students' character. Questionnaire and interview analyses indicate that *e-Noken* encourages students to be more disciplined, responsible, and appreciative of local Papuan culture. Task reminders, independent study schedules, and a transparent system for collecting assignments foster student responsibility and discipline. Locally-based cultural materials, such as dances, folk tales, and Noken symbols, increase students' awareness and pride in their local identity. These findings are in line with research by (Aini et al., 2024) which emphasizes the importance of integrating local culture into learning to strengthen students' character, motivation, and identity. This has great potential in strengthening culture-based character education in schools. This is also relevant to the broader concept of digital literacy, where digital literacy encompasses not only the ability to access information, but also the ability to understand, evaluate, and use information effectively while fostering awareness of social and cultural values.

However, Pearson's correlation analysis shows that the relationship between the implementation of *e-Noken* (X) and language ability (Y1) and character building (Y2) is not significant. This is due to technical factors and variations in individual student experiences, such as internet network constraints, login difficulties, and differences in initial levels of understanding. However, the correlation between language ability and character building is very strong and significant ($r = 0.930$, $p < 0.01$), indicating that improved language ability are associated with character building in students. These findings support the view that technology-based learning can simultaneously strengthen academic and non-academic aspects through active engagement and effective information management (Bondarenko et al., 2020).

Overall, the findings of this study confirm that the integration of local culture based digital literacy media in learning can have a dual impact: improving language ability and instilling character values in students. This is in line with the objectives of 21st-century education, which emphasizes the holistic development of students' competencies, not only cognitive but also affective and social, and is relevant to the context of Merdeka Belajar (Freedom of Learning), which emphasizes independence, creativity, and critical thinking skills (Az Zahrawaani Purba & Siti Quratul Ain, 2024). Thus, this study not only contributes empirically to the literature on digital literacy and local culture-based education but also provides practical implications for schools in areas with low literacy rates, such as Sorong City, to utilize digital technology productively in language learning and character building among students.

CONCLUSION

Based on quantitative and qualitative data analysis, this study shows that the implementation of *e-Noken* as a digital literacy medium based on local Papuan culture contributes significantly to improving the language ability and strengthening the character of students at SMA Oikumene Kota Sorong. Quantitative analysis of the pre-test and post-test

shows a significant improvement in students' language ability, with the average score increasing from 38.44 in the pre-test to 77.66 in the post-test and an average gain score of 0.7658, which is classified as high according to Hake's criteria. These findings indicate that the intervention using *e-Noken* is effective in improving vocabulary mastery, text comprehension, and writing and speaking skills in English. In addition, the findings from the questionnaire and in-depth interviews reinforce these results by showing that students feel that the materials are easily accessible, learning is flexible, and the learning experience is more interactive and independent.

The results of the study also confirm that *e-Noken* plays a role in strengthening students' character through the internalization of local Papuan cultural values. Students reported improvements in discipline, responsibility, and pride in local culture, which were gained through task reminders, independent study schedules, and content featuring dances, folk tales, and Noken symbols. These findings are in line with the principles of character education, which emphasize the integrated development of affective and social aspects with the academic learning process, while also supporting productive digital literacy.

Although Pearson's correlation analysis showed that there was no significant direct relationship between the implementation of *e-Noken* and language ability or character building, a very strong and significant relationship was found between language skills and character building ($r = 0.930$; $p < 0.01$). This indicates that improvements in academic competence, particularly language ability, can be associated with the development of students' character, so that effective intervention in one aspect can have a positive impact on other aspects.

Overall, this study shows that integrating local culture-based digital literacy media into learning not only improves students' language ability but also instils character values simultaneously. These findings emphasize the importance of developing learning media that combines digital technology and local culture, in line with 21st-century educational goals and the Merdeka Belajar (Freedom of Learning) principle, which emphasizes independence, creativity, and holistic student competency development. Thus, *e-Noken* has proven to be an effective and relevant learning innovation, especially for schools in areas with low literacy rates such as Sorong City, which require a technology-based learning approach as well as character building.

Based on the results of this study, the implementation of *e-Noken* has been proven effective in improving language ability and strengthening the character of students at SMA Oikumene Kota Sorong through interactive and independent learning. However, this study used a pre-experimental one-group pretest-posttest design, so the causal relationship is still indicative. Therefore, further research is recommended to use an experimental design with a control group and a larger sample size to strengthen the validity of the findings.

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AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.
Author 2: Conceptualization; Data curation; In-vestigation.

CONFLICTS OF INTEREST

The author declares that, there is no conflict interest.

REFERENCES

Arifin, Z., Nabila, T. K., Rahmi, S., & Atika, n. (2025). Organization of Islamic Education Curriculum to Prevent Radicalism Among Students in Indonesian Universities. *Jurnal Pendidikan Agama Islam*, *22*(1), 81–96. Scopus. https://doi.org/10.14421/jpai.v22i1.8316

Asrori, M., Asy'arie, B. F., Ma'ruf, R. A., Novitasari, D., Al Fajar, A. H., Setiawan, A., & Achmadin, B. Z. (2025). Religious Education Learning Strategies in Realizing Religious Moderation in Islamic Boarding Schools; A Systematic Literature Review. *Asian Journal of Human Services*, *29*, 424–443. Scopus. https://doi.org/10.14391/ajhs.29.424

Asrori, M., Asy'arie, B. F., Yusup Sofian, G., Syakir Hidayat, A. F., & Suja, A. (2025). Islamic educational and cultural values in Indonesian puppetry art: A systematic literature review. *Cogent Education*, *12*(1). Scopus. https://doi.org/10.1080/2331186X.2025.2490445

Awang Abu Bakar, N. S., Yahya, N., Idris, N. B., Zakaria, Z., & Mohd Nordin, M. A. (2025). Enhancing Academic Credential Integrity Through Blockchain-Based Verification Systems. In H. Fujita, A. Hernandez-Matamoros, & Y. Watanobe (Eds.), *Front. Artif. Intell. Appl.* (Vol. 411, pp. 55–67). IOS Press BV; Scopus. https://doi.org/10.3233/FAIA250509

Dardiri, A., Wijayanto, A., Cholimah, N., Arifiyanti, N., Latifah, H. A., & Anugraheni, M. D. P. (2025). The impact of Projek Penguatan Profil Pelajar Pancasila (P5) on early childhood development from the philosophy of progressivism. In B. R. Setiadi, A. Mustikaningtyas, A. Majid, A. Riyadi, N. N. Fatin, A. S. Dewi, & Adiyasa (Eds.), *AIP Conf. Proc.* (Vol. 3354). American Institute of Physics; Scopus. https://doi.org/10.1063/5.0293059

de Sousa, J. V. (2025). Self-assessment in the Graduate Program in Education at the University of Brasília: Challenges and opportunities for knowledge production in the field. *Praxis Educativa*, *20*. Scopus. https://doi.org/10.5212/PraxEduc.v.20.24670.040

Del-Moral-Pérez, E., López-Bouzas, N., & Castañeda-Fernández, J. (2025). Micro-stories, Robotic Coding, Digital Applications, and Augmented Reality to Enhance Children's Computational Thinking. *Pixel-Bit, Revista de Medios y Educacion*, *73*. Scopus. https://doi.org/10.12795/pixelbit.115193

Fajariani, D., Suyama, N., Phadsri, S., Inoue, K., & Ito, Y. (2025). Sensorimotor Intervention for Children with Handwriting Difficulties Regarding Arabic Characters from Occupational therapists' Perspectives in Indonesia. *Journal of Occupational Therapy, Schools, and Early Intervention*, *18*(1), 172–184. Scopus. https://doi.org/10.1080/19411243.2023.2203415

Faridli, E. M., Narimo, S., & Fauzati, E. (2025). Strengthening Integrity through Project-Based Civic Learning: Evidence from Higher Education. *Journal of Cultural Analysis and Social Change*, *10*(3), 1275–1285. Scopus. https://doi.org/10.64753/jcasc.v10i3.2584

Hodelín-Tablada, R. (2025). The innocent patriotic students of medicine. *Anales de la Academia de Ciencias de Cuba*, *15*(2). Scopus. https://www.scopus.com/inward/record.uri?eid=2-s2.0-105013868207&partnerID=40&md5=45262f30d5495f0321ba1c2af491fa2f

Kravchenko, N., Chaika, O., Yudenko, O., & Muntian, O. (2025). Liminality and the metaverse: An analysis of mytho-liminal and mystic-liminal games and their impact on player identity. *Metaverse*, *6*(1). Scopus. https://doi.org/10.54517/m3102

Minsih, M., Mujahid, I., & Mukminin, A. (2025). THE INTEGRATION OF CULTURE LITERACY IN STRENGTHENING THE PROFILE OF PANCASILA STUDENTS IN SCIENCE LEARNING FOR ELEMENTARY SCHOOLS. *Jurnal Ilmiah Ilmu*

Terapan Universitas Jambi, *9*(2), 609–618. Scopus. https://doi.org/10.22437/jiituj.v9i2.41764

Mulyono, H., Fikri, M. H., Hadian, A., Panjaitan, D. J., & Syamsuri, A. R. (2025). VALUE-BASED MARKETING TRANSFORMATION IN ISLAMIC HIGHER EDUCATION: A MULTIDIMENSIONAL ANALYSIS OF COMPETITIVE DEVELOPMENT STRATEGIES, BRAND IMAGE, AND TRANSFORMATIVE STUDENT EXPERIENCES. *Jurnal Ilmiah Ilmu Terapan Universitas Jambi*, *9*(3), 1185–1193. Scopus. https://doi.org/10.22437/jiituj.v9i3.43194

Mutia, T., Irawan, L. Y., Sumarmi, S., Sari, R., & Prasad, R. R. (2025). The Relationship Between the Adiwiyata Program Based on Environmental Activities and Students' Environmental Care Attitudes in Supporting Green Schools. *International Journal of Sustainable Development and Planning*, *20*(1), 25–31. Scopus. https://doi.org/10.18280/ijsdp.200103

Nur, L., Stephani, M. R., Kusdinar, Y., Hidayat, T., Wijaya, A., Suhendra, D. I., Malik, A. A., & Nilan, F. (2025). The Effectiveness of the Sport Education Model with Local Wisdom in Shaping Social Attitudes among Elementary School Students. *International Journal of Human Movement and Sports Sciences*, *13*(4), 901–908. Scopus. https://doi.org/10.13189/saj.2025.130426

Palittin, I. D., Hallatu, T. G. R., & Rediani, N. N. (2025). Strengthening of the environmentally caring character for students through learning using the field school module. In D. Parenden (Ed.), *IOP Conf. Ser. Earth Environ. Sci.* (Vol. 1471, Issue 1). Institute of Physics; Scopus. https://doi.org/10.1088/1755-1315/1471/1/012016

Siregar, M. D., Lasmawan, I. W., Arnyana, I. B. P., & Ardana, I. M. (2025). Learning Module for IPAS Based on Tesuling Local Cultural Values: Instilling Global Diversity and Religious Moderation in Elementary Students. *Educational Process: International Journal*, *18*. Scopus. https://doi.org/10.22521/edupij.2025.18.433

Sujana, I. W., Kristiantari, M. G. R., Ambara, D. P., & Sujana, I. N. (2025). The Use of Balinese Local Wisdom of Kamasan Puppet Paintings in Building Pancasila Learner Profiles in Elementary Schools. *Journal of Cultural Analysis and Social Change*, *10*(2), 849–857. Scopus. https://doi.org/10.64753/jcasc.v10i2.1700

Surada, I. M., Subagia, I. N., & Adnyana, P. E. S. (2025). Learning Sanskrit to Strengthen Multiculturalism and Religious Moderacy. *International Journal of Engineering, Science and Information Technology*, *5*(3), 388–393. Scopus. https://doi.org/10.52088/ijesty.v5i3.968

Umar, n., Jayanti, M. I., Kadir, A., & Firdaus, A. Y. (2025). Mapping Trends in Research on the Enhancement of Students' Social Skills and Prosocial Behavior: A Systematic Literature Review. *Educational Process: International Journal*, *14*. Scopus. https://doi.org/10.22521/edupij.2025.14.70

Wang, L.-C., Kung, S.-H., Chen, J.-K., & Kuo, H.-C. (2025). Repeated reading and Chinese oral-reading fluency: Is prosodic sensitivity an indispensable link? *Journal of Research in Reading*. Scopus. https://doi.org/10.1111/1467-9817.70017

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