



Education Program for Strengthening Literacy-Numeracy through 10 in 1 Box Media in Elementary School

Nadiah Putri Anggraeni^{1*}, Nidya Nur Mashitoh², Tika Widiya Ningrum³, Kevin Cahya Andilla Unwaru⁴, Naili Afkarina⁵, Lailatul Nuraini⁶ 

^{1,2,3,4,5,6} Physics Education, Jember University, Jember, Indonesia

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ABSTRAK

Pendidikan adalah pemberian pengetahuan tentang suatu mata pelajaran tertentu untuk meningkatkan pemahaman. Literasi numerasi terdiri dari tiga aspek yaitu berhitung, relasi numerasi, dan operasi aritmatika. Siswa Indonesia memiliki kemampuan yang rendah dalam literasi numerasi. Tujuan dari kegiatan pengabdian kepada masyarakat ini adalah untuk menganalisis efektivitas hasil program edukasi dengan menggunakan media 10 in 1 box muatan lokal untuk penguatan literasi dan numerasi pada siswa sekolah dasar. Metode pelayanan yang digunakan adalah pendekatan service learning (SL). Hasil kegiatan pengabdian menyatakan terdapat perbedaan hasil belajar literasi sebelum dan sesudah diberikan perlakuan, rata-rata hasil literasi setelah diberikan perlakuan lebih tinggi dibandingkan sebelum diberikan perlakuan. Nilai tanda tangan. (2-tailed) $0,000 < 0,05$ sehingga dapat dikatakan terdapat perbedaan yang signifikan antara sebelum diberi perlakuan (pretest) dan sesudah diberi perlakuan (posttest). Rata-rata skor n -gain sebesar $0,7818 > 0,7$, artinya kategori yang diperoleh adalah tingkat efektivitas tinggi. Sedangkan untuk persentase n -gain nilai yang diperoleh sebesar 78,18% sehingga dapat diartikan bahwa media edukasi budaya proteksi 10 in 1 box efektif untuk memperkuat kemampuan literasi numerasi siswa sekolah dasar.

ABSTRACT

Education is the provision of knowledge of a particular subject to increase understanding. Numeracy literacy consists of three aspects, namely, counting, numeracy relations, and arithmetic operations. Indonesian students have a low ability in numeracy literacy. The aim of this community service activity is to analyze the effectiveness of the results of an educational program using 10 in 1 box media with local content to strengthen literacy and numeracy in elementary school students. The service method used is the service learning (SL) approach. The results of the service activities stated that there were differences in literacy learning outcomes before and after the treatment, the average literacy results after the treatment were higher than before the treatment. Sig value. (2-tailed) $0.000 < 0.05$, so it can be said that there is a significant difference between before being treated (pretest) and after being treated (posttest). The average n -gain score is $0.7818 > 0.7$, meaning the category obtained is a high level of effectiveness. Meanwhile, for the n -gain percentage, the value obtained was 78.18%, so it can be interpreted that the 10 in 1 box educational media for protection culture is effective for enforcement numeracy literacy skills of elementary school student.

1. INTRODUCTION

Education is the provision of knowledge of a particular subject to increase understanding. With a strong understanding, a positive mindset will be formed. Literacy is the ability of individuals to apply skills and potential in managing and understanding information while engaging in reading, writing, arithmetic and solving problems in everyday life (Ginting, 2020; Umasugi, 2021). Numeracy literacy is a person's ability to use reasoning. Reasoning in this case is analyzing and understanding a statement, through activities in manipulating symbols or mathematical language found in everyday life and expressing the statement through writing or oral. Numeracy literacy consists of three aspects, namely, numeracy, numeracy relations, and arithmetic operations (Cahyanovianty & Wahidin, 2021; Rosyidah et al., 2022). Numeracy is the ability to count objects verbally and the ability to identify the number of objects. Numeracy relations relate to the ability to distinguish the quantity of an object such as more, less, higher, or shorter. While arithmetic

*Corresponding author

E-mail addresses: nadiahputri83@gmail.com (Nadiah Putri Anggraeni)

operations are the ability to do basic mathematical operations in the form of addition and subtraction (Faza et al., 2022; Perdana & Suswandari, 2021). Based on the PISA assessment in 2018, Indonesia's literacy score was 371 and numeracy was 379 with an OECD average score of 487, this resulted in Indonesia being ranked 74 out of 79 countries, which shows that Indonesia has decreased at the international level, especially in the field of literacy (Fenanlampir et al., 2019; Wijaya et al., 2014).

The development of science and technology in the 21st century has changed how learners learn, which makes us need more innovative learning approaches. This change includes various aspects such as changes in knowledge, understanding, attitudes, behavior, skills, creativity, abilities, responsiveness, acceptability, and other elements that affect the individual learning process (Handini & Mustofa, 2022; Stuchlikova, 2016). As the times progressed, local culture began to be abandoned. As a young generation, it is necessary to continue to preserve local culture in Indonesia, one of which is Pandalungan in Jember Regency. Pandalungan is a culture identified for the Horseshoe region which covers seven regencies, namely, Banyuwangi, Bondowoso, Jember, Lumajang, Pasuruan, Situbondo, and Probolinggo. The term Pandalungan is not yet known with certainty began to be used as a cultural identity. In a report, the Dutch controller in charge of Jember. The cultural results of Pandalungan Jember as cultural hybridization produce a unique and contemporary culture. Here are Pandalungan cultures in Jember in the arts such as Can-Macanan Kadduk, Janger, Lengger, Music Patrol, and Jember Fashion Carnival (JFC).

The impact of learning that is not well prepared in schools in general, is the occurrence of learning loss. This learning loss is the result of poor preparation in learning and can lead to a decrease in student learning achievement (Engzell et al., 2021; Todd & Romine, 2018). Learning media is one of the factors that play an important role during the learning process. Teachers use media as an intermediary in delivering material so that it can be understood by their students well. The use of teaching media in the teaching and learning process can generate new desires and interests, generate motivation and stimulation of learning activities, and even bring psychological influences on students. Media is used to send messages to message recipients so that they can stimulate thoughts, feelings, attention and interest so that the teaching and learning process can occur (Arrovia, 2021; Zaini & Dewi, 2017).

There are three fundamental reasons for the need to use media in the learning process in the classroom, especially for elementary school students. First, elementary school students tend to still think concretely, so abstract subject matter needs to be visualized so that it becomes more real. Second, the use of media in the learning process can arouse students' interest and motivation to learn, reduce or avoid verbalism, generate orderly, systematic reasoning, and to foster understanding and develop values in students. Third, learning using media can also provide meaningful experiences for students because with the use of media students can witness directly the things that happen around them (Supriyono, 2018; Yayuk et al., 2023). A teacher is expected to be able to plan and implement the learning process effectively to students. In addition, a teacher can also connect the subject matter with the context of student life, so that students can understand the lesson more concretely and not abstractly. Learning media is one of the factors that play an important role during the learning process (Irawaty et al., 2021; Suni Astini, 2020).

Baletbaru State Elementary School 02 is one of the elementary schools located on Jalan. Imam Sukarto No. 16 Baletbaru, Sukowono District, Jember Regency. The conditions at Baletbaru 02 State Elementary School are located in the countryside far from the city center. Teaching and learning activities are carried out with a face-to-face (offline) system using books. Almost all students are getting bored with learning activities carried out with book media alone as a learning resource, so students do not have sincerity in learning and are more happy with playing games. In general, elementary school students are very happy to play rather than learn. Based on the above problems, the community service team conducted a service program that aimed to analyze the effectiveness of the educational program on the use of 10 in 1 box media with local content as an effort to strengthen literacy-numeracy in SDN Baletbaru 02 students.

2. METHOD

This community service activity uses a method of implementing service with a Service Learning (SL) approach. This approach is a method of implementing service that emphasizes practical aspects that refer to the concept of Experiential Learning. Service Learning (SL) is an approach to teaching that combines academic goals and efforts to raise awareness in solving community problems directly. To improve students' understanding and mastery in capturing knowledge provided through the learning process, a teacher must use a student-based learning approach. This approach encourages students to be actively involved in the learning process (Setyowati & Permata, 2018). The use of the Service Learning (SL) method aims to make a learning process occur in overcoming problems faced by students and providing the knowledge students need (Ifit & Hayat, 2021; Oktapriana et al., 2021). The application of the Service Learning method has three stages, namely, the preparation phase, the implementation phase, and the

evaluation phase. The stages of the Service Learning (SL) method in this community service activity can be seen in Figure 1.

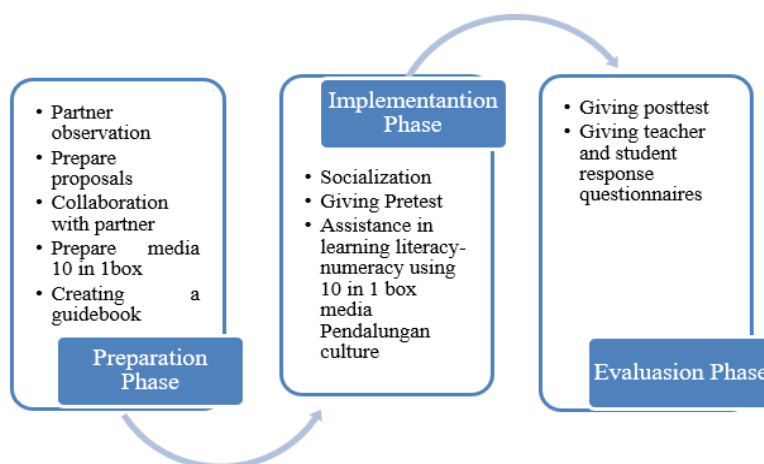


Figure 1. Stages of Service Learning

Data was taken using pretest, posttest, and student response questionnaires. To measure the improvement of literacy-numeracy skills through the use of 10 in box educational media through pretest and posttest. Pretest activities are carried out at the beginning of activities before mentoring while posttest is carried out after learning assistance. Numeracy-literacy learning outcomes were analyzed using the Paired t-test. Questionnaire data was taken at the end of the program or after the application of media to high grade students, namely grades 4 and 5. The measurement scale used is the Likert scale with a range of 1 – 5, where (1) strongly disagree, (2) disagree, (3) disagree, (4) agree, and (5) strongly agree. The following are the criteria for the average percentage score category which can be seen in Table 1.

Table 1. Score Category Criteria

Average	Criteria
100% - 86 %	Very Good
85% - 76%	Good
75% - 60%	Enough
59% - 55%	Less
≤ 54%	Very Lacking

Results from the pre-test and post-test are collected and tested statistically. Data analysis techniques use 2 stages, namely prerequisite analysis tests and then hypothesis tests. The hypothesis test in this study was used to determine the effectiveness of using local wisdom media for 10 in 1 box. Test prerequisites using normality tests, and hypothesis tests with N-Gain Score (Rahma, 2020; Rahman & Silaban, 2021). N-gain score division category is show in Table 2.

Table 2. N-Gain Score Division Category

N-Gain Value	Category
$Ngain > 0.7$	High
$0.3 \leq Ngain \leq 0.7$	Keep
$Ngain < 0.3$	Low

Table 3. Categories Interpretation of N-Gain Score Effectiveness

Percentage (%)	Category
$Ngain < 40$	Ineffective
40 – 55	Less effective
56 – 75	Quite effective
> 76	Effective

3. RESULT AND DISCUSSION

Result

Community service activities for the educational program to strengthen literacy-numeracy through the use of 10 in 1 box media containing local wisdom will be carried out from August to September 2023. The activity begins with observation. Observations are made to find solutions to problems faced by partners. The partner in this community service activity is SDN Baletbaru 02 located on Jalan. Imam Sukarto No. 16 Balletbaru, Sukowono District, Jember Regency. After identifying the problems faced by partners, the community service team compiles proposals to make solutions to the problems faced by partners. The proposal that has been prepared is then submitted to the Directorate General of Higher Education, Research and Technology (Ditjen Dikti Ristek) to get funding. After obtaining funding, the next stage is preparing media that will be implemented to partners. The media used in this community service activity is 10 in 1 box educational media. 10 in 1 box educational media is a learning media containing local wisdom of pedalungan culture to improve literacy-numeracy and increase knowledge of science-mathematics. This media makes students learn while playing, the media is designed so that students can not get bored and have enthusiasm in the learning process. Documentation of PKM PM team activities with supervisors, principals, teacher councils, and students of SDN Baletbaru 02 Sukowono as shown in [Figure 2](#), and [Figure 3](#).



Figure 2. Documentation of the PKM-PM Team of Supervisors, School Principals, Teacher Councils, and Students of SDN Baletbaru 02 Sukowono



Figure 3. PKM-PM Team Documentation with the Teacher and Student Council of SDN Baletbaru 02 Sukowono

The 10 in 1 box educational media combines educational elements with the local culture of pedalungan, so that students not only learn to improve literacy-numeracy but also introduce the local culture of pedalungan to students. After making the media, the next stage is to socialize to partners about community service activities that will be carried out. Socialization is carried out to provide an overview to partners about community service activities that will be carried out. After socialization, pretest activities were carried out to determine the initial abilities of students before using educational media 10 in 1 box pedalungan culture. The next stage is to provide learning assistance to students with teachers using educational media 10 in 1 box of masterminding culture in the learning process. After learning assistance, then enter the evaluation stage which includes giving posttests and response questionnaires to students. Posttest activities are carried out to measure students' abilities after using educational media 10 in 1 box pedalungan culture.

This community service activity aims to improve students' literacy and numeracy skills at SDN Baletbaru 02. Learning assistance activities using 10 in 1 box educational media are carried out for two weeks every Saturday. In the first week, learning assistance was carried out using five media, as well as the second week using five learning media used. When mentoring learning using educational media 10 in 1 box pedalungan culture, students are enthusiastic in participating in learning. Students feel happy when using these media during the learning process. In addition to improving literacy and numeracy skills, students also add insight into the local culture of pedalungan. The learning assistance process uses 10 in 1 box media as shown in [Figure 4](#).



Figure 4. Learning Assistance Using 10 in 1 Box *Media*

Pretest and posttest data were analyzed using SPSS-23 to determine the difference in the average literacy-numeracy learning outcomes before and after using 10 in 1 box media. The results of the data normality test are as shown in Table 4.

Table 4. Test of Normality

Kelas	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	0.110	53	0.163	0.974	53	0.295
Posttest	0.135	53	0.017	0.944	53	0.015

Base on Table 4, the pretest and posttest value data are normally distributed. The pretest significance value of $0.163 > 0.05$ means that it is normally distributed, while the postes significance value of $0.017 > 0.05$ is also normally distributed. So that a paired sample t-test can be carried out to see the difference in significance of the prestes and posttest values as shown in Table 5.

Table 5. Paired Samples Test

Pair	Paired Differences						t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1 Before Treatment - After Treatment	-15.849	10.995	1.510	-18.880	-12.818	-10.494	52	0.000	

From the results of Table 5 Sig. (2-tailed) values of $0.000 < 0.05$, it can be said that there is a significant difference from before treatment (pretest) and after treatment (posttest). So that there is a significant difference in student learning outcomes before and after being treated. The treatment of this community service activity is the use of 10 in 1 box media containing local wisdom of pendalungan. Based on the questionnaire of student and teacher responses given after the use of educational media 10 in 1 box pendalungan culture stated that the use of educational media 10 in 1 box pendalungan culture is very good for improving literacy-numeracy. The results of the recapitulation analysis of student and teacher response questionnaires as shown in Table 6, and Table 7.

Table 6. Result of Student Response

Aspects	Percentage	Category
Interest	89.13%	Very Good
Relevance of the Material	87.30%	Very Good
User Understanding	88.11%	Very Good
Average Percentage	88.18%	Very Good

Table 7. Result of Teacher Response

Aspects	Percentage	Category
Penyajian	82.96%	Good
Kepraktisan	85.55%	Very Good
Rata Rata Presentase	84.25%	Good

Table 8. Deskriptif N-Gain Score

Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_Score	53	53	0.25	1.00	0.7818
Ngain_Persen	53	53	25.00	100.00	78.1761
Valid N (Listwise)	53				

Based on [Table 8](#) show the average n-gain score of $0.8359 > 0.7$, it means that the category obtained is a high level of effectiveness. As for the n-gain percentage, a value of 83.59% is obtained so that it can be interpreted that the educational media 10 in 1 box of pendalungan culture is effective.

Discussion

The average learning outcomes of student literacy-numeracy have differences before and after using educational media 10 in 1 box pendalungan culture. The average score of literacy-numeracy learning outcomes after using 10 in 1 box educational media of pendalungan culture is higher than the results of learning literacy-numeracy before using 10 in 1 box of pendalungan culture media. The average value of learning outcomes before treatment was 55.28 while after treatment was 71.13. The average value of N-Gain score is 0.8359 which means that the effectiveness level of educational media 10 in 1 box of education culture is high. The use of 10 in 1 box learning media can improve students' literacy-numeracy skills. The use of fun learning media will motivate students in learning. A fun learning process will attract students' attention and increase students' understanding in learning. This is supported by an increase in the average literacy-numeracy learning outcomes of 28.65% from before and after treatment using 10 in 1 box media. Learning media has a function as an intermediary for teachers in delivering learning materials to students. The use of learning media can make abstract concepts easier to understand or concrete and can make the learning atmosphere interesting. Student numeracy literacy skills are influenced by learning media because they involve students in group discussions, use learning media to find information needed to solve contextual problems, and receive evaluative feedback related to problems contained in the learning media ([Ambarwati & Kurniasih, 2021](#); [Sogen et al., 2023](#)).

Students are very interested in following learning by playing which includes learning science, math, and Indonesian. In addition, students can also think critically, passionately, attract interest, creativity, and be motivated. Students are motivated to try to answer questions given in learning, students who are usually lazy to answer are motivated to be active in the learning process. Based on the results of the interview, students stated that they were very happy to learn using 10 in 1 box learning media because it was very fun and easy to understand. The use of media in learning is an effective solution for teachers in improving student learning outcomes. Effectiveness occurs because learning media is able to change the learning process to be more interesting and less monotonous, so that students are more enthusiastic in participating in learning ([Kusumawati et al., 2021](#); [Wahyuningtyas & Sulasmono, 2020](#)). Through the use of learning media, students also have their own ways to make it easier to remember things because in addition to seeing students can feel it. The combination of learning media with local culture is able to encourage students to practice in improving literacy-numeracy skills in a fun and easier to understand manner ([Ardiana et al., 2022](#); [Rohmah et al., 2022](#)). Through the use of Pendalungan's local wisdom in learning, students not only acquire knowledge of their own culture, but also develop literacy and numeracy skills that are essential for their future. This not only strengthens their cultural identity, but also empowers them with the skills necessary to succeed in everyday life and in an increasingly complex globalized world.

The results of the study are in line with community service activities carried out by previous study stating that learning assistance using snakes and ladders media in English language learning can provide insight, knowledge, experience, student activeness and increase students' interest in learning and skills in learning English ([Kumala et al., 2020](#)). Community service activities carried out by other study stated that tutoring carried out in Klis Village can improve literacy and numeracy skills at the elementary school (SD) and junior high school (SMP) levels ([Makay et al., 2023](#)). Research conducted by other study states that the impacts of media use on children is that they can experience interactive and fun learning so that they are motivated and involved in the learning process ([Bopo et al., 2023](#)). Children will feel more interested and

enthusiastic in following learning, because the media used provides an interactive and fun learning experience. Research conducted by other study states that the use of domino card media with an active learning approach can improve the literacy-numeracy skills of grade VI elementary school students (Nurudin, 2023). Based on previous studies conducted by other researchers, it can be concluded that the Education Program for Strengthening Numeracy-Literacy Contains Local Wisdom Through the Use of 10 in 1 Box Media at SDN Baletbaru 02 that we have carried out is effective in improving students' numeracy literacy skills. In addition, the excellent response from teachers and students is due to the learning media that used creatively, innovatively, interatively, and interestingly. In addition to improving literacy-numeracy skills, students can get to know and be able to preserve the local culture of Pandalungan.

Teachers and service team members provide active support to students during learning activities, ensuring that each student feels supported and motivated to learn. The increase in students' interest in learning can be seen from their enthusiasm in using this learning media, even when facing challenges and difficulties. In addition to students, the role of teachers and principals is also very important in the success of this program. Their support and commitment in integrating local culture-based learning media into the school curriculum helps create an inclusive and supportive learning environment. Principals and teachers are also actively involved in facilitating learning activities, providing guidance to students, and measuring their learning progress. Through strong cooperation and shared sincerity, the program is a clear example of how innovative approaches to learning can create a positive impact in education and strengthen students' bond with their cultural heritage.

There are several obstacles faced by researchers during the process of implementing 10 in 1 box media at SD Negeri Baletbaru 02, these obstacles include the enthusiasm and curiosity level of students in using media is very high. When applying media, students are divided into several groups who will later take turns to play 10 in 1 box media, there are some students who do not fully understand one media, but can't wait to try other media. This causes some students to lack understanding about the media that has been used. The solution effort that the service team made was by moving the place of learning implementation in the hall. In the first week the learning process is carried out in the classroom, while the second week is carried out in the hall. This can overcome the obstacles that occur in the first week, because the hall is wider than the classroom so that students will focus more on the use of the media being taught.

4. CONCLUSION

Based on the results of community service activities carried out by the team, it can be concluded that the use of learning media by combining fun cultural elements such as "Education Media 10 in 1 box Pandalungan Culture" is effective in improving literacy and numeracy skills. Student literacy-numeracy learning outcomes have increased by using these media. In addition, the use of these media is able to motivate, encourage, attract interest in learning, encourage critical thinking, and add insight into the local culture of pendalungan. The use of learning media with a local wisdom approach provides meaningful learning for students, in addition to improving their skills they can also recognize their own local culture. This community service activity does need to be improved to be more creative and innovative in creating effective learning media for elementary school students in the future. Literacy and numeracy containing students' local wisdom really need to be improved because it is aimed at improving students' ability to read, write, and spell as well as understand the meaning of the text read (literacy), as well as in understanding and using numbers and mathematical operations (numeracy) in everyday life. Therefore, innovative ideas are needed to create similar learning media based on local wisdom.

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