Learning Media Modification: *Dhako* as English Mathematic Learning Media with a Problem-based Learning Approach

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Article Info	ABSTRACT
	Using traditional game media provides several benefits in teaching and learning activities in the classroom. Previous studies found that giving English numeracy material using *Dhako* games was effective in increasing vocabulary but less effective in arithmetic operations (addition, subtraction, multiplication, and division). This study aimed to determine the modification of the *Dhako* game on vocabulary mastery and arithmetic operation skills for 5th-grade students of *SDN Aengdake I.* The research method used was quantitative: one group pretest and posttest design with data analysis using T-Test analysis. Based on the results of the descriptive analysis, the students' mean pretest = 74.47 and posttest = 89.76. Based on the results of descriptive analysis, the students' mean pretest = 69.56 and posttest = 91.35. Thus, it could be concluded that the provision of *Dhako* games with a PBL approach significantly affected English numeracy skills. Based on the output table of the t-test results, the value of sig = 0.000 is obtained, which means it was smaller than 0.05. Thus Ho was rejected, and H1 was accepted, meaning that there was an effect of the *Dhako* game with the PBL approach on improving English numeracy skills for fifth graders at *SDN Aengdake I.*

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INTRODUCTION

The teaching and learning process as a knowledge transformation activity both in the classroom and outside the classroom, both online and offline, between teachers and students is essential to improve the quality of Human Resources in the future. In line with this statement, the National Education System Law No. 20 of 2003 Article 1, paragraph 1 states that education is a conscious and planned effort to develop potential and achieve religious and spiritual strength, self-control, personality, intelligence, and character. , and skilled. Of course, it takes a long process to achieve the objectives mandated by the law (Kemendikbud, 2003).

In a learning process, knowledge is needed to improve the quality of student learning, known as practical learning (Iranti et al., 2023). Effective learning is a learning process that can provide understanding to students to form self-competence. A pleasant atmosphere, the selection of methods, and mastery of the material by the teacher are essential elements of effective learning.

At the elementary school level, teachers are required to be creative in choosing and using media and learning methods. Not without reason, elementary school students still need help to think critically and creatively. So motivational encouragement from outside is required to improve the quality of their learning. According to Sutikno (2014), the method is used to achieve specific goals. In line with this understanding, (Sanjaya, 2011) says that the learning method is a way that is applied in the teaching and learning process to use the plans that have been designed in actual activities to achieve goals optimally.

English is a subject that is taught at the elementary school level. Based on the decision of the Minister of Education and Culture, which refers to the 1994 curriculum, English can and may be taught at the elementary school level (Kemendikbud, 1994). Referring to the Decree of the Minister of Education and Culture, R.I. No.0847/1992 and Decree No. 060/U/1993, English lessons in elementary schools are local content subjects (mulok) (Kemendikbud, 1994). At this level, the English teaching and learning process is faced with complex difficulties such as pronunciation, vocabulary, and writing methods. Apart from the difficulties of teaching and learning English, (Aedi & Amaliyah, 2017) revealed that English is needed, even by elementary school children, to face the era of globalization.

Several theories support the importance of providing English material to elementary school students. According to (Dulay, 1982), providing a second language (foreign language) to children under ten years is much better than to children at puberty. Even in several countries in Southeast Asia, such as Malaysia and Singapore, English has been taught starting at the Kindergarten level. In line with this statement, (Lindfors, 1987) said that children's semantics at an early age develop very actively.

At the elementary school level, counting in English is a fundamental skill. It means that at the following classes of secondary and high school) numeracy in English will still be needed. No less critical, arithmetic operations also have the same position in terms of students' cognitive needs.

The use of local wisdom-based learning media in learning at the elementary school level has a significant impact. A.S Keraf (2010) says that local wisdom is all forms of knowledge, beliefs, insights, and customs that guide human life. In line with this theory, the results of research conducted by Akhmad (2021) say that the use of dhako games is effective in increasing knowledge of number vocabulary in English but is less effective in arithmetic operations. Briefly, the previous research data is shown in figure 1.

The data above shows that the dhako game is effective (80%) in increasing number vocabulary in English but less effective (40%) for addition, (40%) for subtraction, (30%) for multiplication, and (30%) for division.

Based on the data obtained from previous studies, the researchers attempted to conduct further research, namely modifying the dhako game to improve overall numeracy skills (numbers, addition, subtraction, multiplication, and division). At the elementary school level, simple models are needed to enhance students' cognitive abilities. Bujuri (2018) said that children aged ten years (grades 4-5) had entered cognitive skills in synthesis but are still very simple.

Regarding counting, the dhako game can be modified to become a medium that can teach arithmetic operations in English. According to (Kurniati, 2016), the dhako match is played by two people facing each other, and a dhako board is placed in the middle. In a clockwise direction, each hole is spiked with seeds according to the number of seeds owned, including the parent hole, which will later become an indicator of winning or losing.
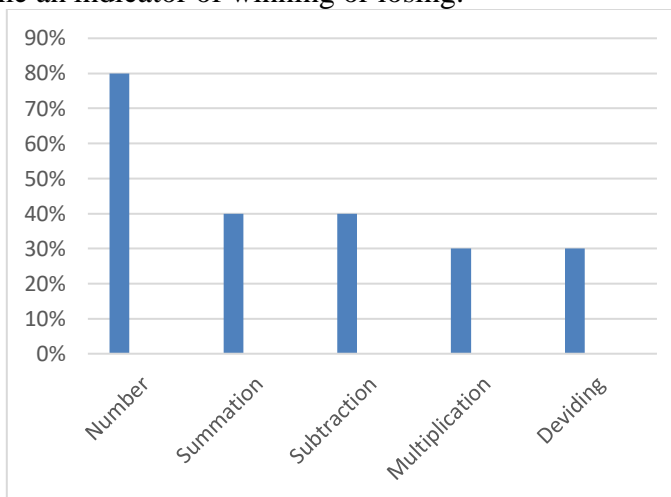

Figure 1. Effectiveness of Playing Dhako toward some Categories

Before students are given arithmetic exercises in English using dhako as a calculating tool, the teacher will give a question with a PBL (Problem-Based Learning) approach. The teacher illustrates arithmetic operations in daily life. The illustrations are packaged in the form of simple story questions in English. The teacher will divide the students into several small groups to solve the problems/questions given.

The problem-solving that has been given is then solved with the teacher's guidance using a modified dhako game. The modification of the dhako game in question is by utilizing the acquisition of dhako seeds and the number of holes in the game. The teacher can teach increasing vocabulary in English while teaching arithmetic operations (addition, subtraction, multiplication, and division) in English. The teacher asks students to take several seeds that have been collected in the main hole, and then students put the seeds into the spot according to the counting operation intended by the teacher. For example, the teacher asks students to take eleven (eleven) seeds, and then the eleven seeds are placed in two dhako holes with different amounts. Students will put five (five) on the first hole and six (six) on the second hole. The conclusion obtained from teaching arithmetic operations (summation) is five plus six is eleven. The same pattern applies to all arithmetic operations (subtraction, multiplication, and division).

From some of the descriptions above, the research team wanted to know the effect of the modified dhako game with the PBL approach in increasing number vocabulary knowledge and students' skills in counting (addition, subtraction, multiplication, and division) in English.

LITERATURE REVIEW
Teaching English at the elementary school level has changed from year to year. Referring to the Decree of the Minister of Education and Culture, R.I. No.0847/1992 and Decree No. 060/U/1993, English courses in elementary schools are included in the mulok realm. In 1999-2003, mulok subjects (English) were taught to students in grades 4 to 6. Furthermore, in the

2003-2004 academic year, mulok subjects (English) were taught to all elementary school levels (grades 1-6). The government has regulated this in law No. RI. 20 of 2003 concerning the National Education System Article 30 paragraph 1, which states that elementary schools are obliged to teach mulok (English) at the elementary school level.

Along with the development of the times, English language skills is needed so that many public and private schools involve English in their curriculum to be taught in elementary schools and even Kindergartens (TK) (Fatoni & Cahyono, 2022).

In teaching English at the elementary school level, of course, teachers face many difficulties. Starting from pronunciation, and memorizing vocabulary, to writing words. The problem is inseparable from the daily communication habits of students who rarely even use English. The student's mother tongues are Madurese and Indonesian.

Another problem faced in providing English material in elementary schools is the teacher's skill. The position of English as a Mulok subject directly impacts teachers' skills in teaching. The reason is that almost all English teachers in elementary schools are classroom teachers. It means that the teacher's English language skills still need to meet the English language qualifications. One of the steps to provide English material for elementary school students is to use game media.

Media becomes essential to be applied in teaching and learning activities in the classroom (Anarli et al., 2023; Nurzayyana et al., 2021). Musfiqon (2012) said that the function of the media in learning is to improve the quality of learning with indicators of student understanding of the material provided and the completeness of the material. Meanwhile, according to Kemp and Dayton (in Arsyad 2002) the provision of material in the classroom becomes more interesting if the teacher (educator) uses game media. Students can interact with each other in the context of playing through audio, video, or motion.

Regarding the use of games in learning, it takes a game that is familiar or often played by students. At the level of elementary school students, traditional games are games they often play in their daily lives. Especially in the Sumenep area, many classic games are commonly played, such as dhako, cempleng, beklen, etc.

Referring to the previous research, the researcher used the dhako game to determine the effectiveness of numeracy skills in English. (Heryanti et al., 2014) says that congklak (dhako) is a traditional game with a longboard with seven basins on each side and two larger basins on the left and right that serve as barns.

In previous research, it was found that the dhako game was effective in increasing number vocabulary in English. Still, it could have been more effective for arithmetic operations (addition, subtraction, multiplication, and division). The results of previous studies can be summarized in the table below. Based on these results/findings, the researchers tried to modify the dhako game to improve numeracy skills and arithmetic operations in English.

The dhako game has several advantages when used in learning. Widiawati (2013) said that using dhako in their education can increase student creativity in all aspects (cognitive,

psychomotor, and affective). In addition, playing dhako can also increase students' motivation to learn while keeping traditional games from becoming extinct.

Another variable that will be used in this research is the Problem-Based Learning (PBL) approach. This approach is used so that teaching and learning activities are not only focused on teacher explanations. In learning with the PBL approach, students are given a problem, and then in groups, they are asked to solve it. According to (Pease & Kuhn, 2011), Problem-Based Learning is a contextual approach by giving a problem to students without any preparation related to certain materials. In problem-solving, students are directed to discuss in small groups.

In group discussions, students are directed to translate the questions into Indonesian, and then they have the same perception of the intended meaning of the story questions. According to (Wood, 2003), the discussion process in Problem-Based Learning has several stages: understanding the situation, identifying problems, selecting possible answers, connecting issues and solutions, sorting out the information needed, collecting data, and using the information to solve problems.

After collecting student answers related to giving questions using the PBL approach, the teacher invites students to play dhako as a medium for counting operations. The dhako game in question is modified.

Regarding modification, the teacher/researcher will try to add some extra activities that still take advantage of the dhako game. For example, the teacher will ask what is four plus four? Then the teacher will ask the students to take four dhako seeds to put in one hole and four more seeds into the other hole. After that, the teacher will ask students to count all the seeds inserted into the two holes in English. Then students will count up to eight (eight). So the answer to the previous teacher's question is "Four plus four is eight."

METHOD
a. Research Design
This research began when the researcher found that in a previous study, the dhako game was effective for increasing knowledge of number vocabulary in English but less effective for improving numeracy operations skills (addition, subtraction, multiplication, and division). In this study, the research team will use the same media (dhako) but with the addition of several activities. In addition, the teacher will also provide practice questions with a Problem-Based Learning (PBL) approach.

The researcher used quantitative research methods. In contrast, the research design "One Group Pretest-Posttest Design," namely the research design that contained a pretest before being given treatment and a posttest after being given treatment. Thus it can be known more accurately because it can be compared with being held before treatment (Sugiyono, 2001: 64).

The population of this study was fifth grade student of SDN Aengdake I as many as 18 students. The research instrument was oral test. The students firstly tested about numerical counting 1-20. After that, the researcher gave some treatments and finally the students tested more as post-test.

b. Data Collection

In this study, for the first time, the researcher gave students a pretest about students' proficiency in arithmetic and addition operations in English. Next, the research team gave the material three times face-to-face using the dhako game media. After the students proficiently mention numbers, the research team/teacher will present a problem using the PBL approach, packaged as an English story question. Next, the group discussed the answers to the questions by using the dhako game as a calculating tool. Posttest was carried out at the end of the meeting as a data collection technique. The posttest was applied to speaking skills. So the assessment rubric used is the speaking assessment rubric.

RESULTS

In general, this research was carried out in five stages with details of the first face-to-face, namely giving a pretest and a little material about numbers in English, the second face-to-face playing dhako while counting in English, the third face-to-face playing dhako while learning arithmetic operations in English. English, the fourth gives simple English story questions with a PBL approach, and the fifth offers posttests.

Table 1. Paired Sample Statistic of Vocabulary Mastering

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest of vocabulary mastering	74.4750	18	1.09372	.25779
	Posttest of vocabulary mastering	89.7689	18	1.86359	.43925

Based on the results of descriptive analysis, the students' mean pretest = 74.47 and posttest = 89.76. It means there is an increase in the value of vocabulary mastery using games with a PBL approach. Thus, it can be concluded that giving a dhako game with a PBL approach significantly affects the ability of English vocabulary.

Table 2. Paired Sample Test of Vocabulary Mastering

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pretest of vocabulary mastering Posttes of vocabulary mastering	-15.29389	2.02905	.47825	-16.30291	-14.28486	-31.979	17	.000

Based on the output table of the t-test results, the value of sig = 0.000 is obtained, which means it is smaller than 0.05. Thus, Ho is rejected, and Ha is accepted, meaning that the dhako game with the PBL approach affects improving English vocabulary.

Table 3. Paired Sample Statistic of Numeracy Skill

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest of numeracy skill	69.5689	18	3.34254	.78784
	Posttest of numeracy skill	91.3583	18	1.84713	.43537

Based on the results of descriptive analysis, the students' mean pretest = 69.56 and posttest = 91.35. It means that there is an increase in the value of students' numeracy skills using the dhako game with a PBL approach. Thus, it can be concluded that giving the dhako game with a PBL approach has a significant effect on English numeracy skills.

Table 4. Paired Sample Test of Numeracy Skill

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference			d	Sig. (2-
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	f	tailed)
Pair 1	Pretest of numeracy skill - Posttest of numeracy skill	-21.78944	2.96929	.69987	-23.26604	-20.31285	-31.134	17	.000

Based on the output table of the t-test results, the value of sig = 0.000 is obtained, which means it is smaller than 0.05. Thus Ho is rejected, and Ha is accepted, meaning that there is an effect of the dhako game with the PBL approach on increasing numeracy skills (addition, subtraction, multiplication, and division) in English.

DISCUSSION

The success of this research is affected by several factors. In this step, the researcher discussed the finding with previous studies. Some research was conducted to analyse students' difficulties regarding English vocabulary. The low level of students' vocabulary mastery is due to two primary factors; they are internal and external factors. Media in the learning process is an external factor affecting students' vocabulary mastery. (Sucandra et al., 2022) in her research entitled *"Analisis Kesulitan Penguasaan Kosakata Pembelajaran Muatan Lokal Bahasa Inggris Pada Siswa Kelas IV di SD Plus Latansa Kabupaten Demak"* stated that using media in the learning process increases student vocabulary. The study stated that the internal factor affected the student's lackness are body condition, student's intellectual, learning motivation, and student's learning habit. While the external factors are interference from friends while studying, presentation of material that is less interesting, using suboptimal media and, selection of inappropriate methods.

Learning media is a way supporting the learning success. The teacher can easily and effectively run the process through media. A study conducted by (Aulianti, 2022) entitled *"Pemanfaatan Media dalam Pembelajaran Bahasa Inggris di SDIT Ukhuwah Banjarmasin"* stated The study stated that the use of media in English learning at SDIT Ukhuwah Banjarmasin has been carried out by English teachers, both using simple media such as whiteboards, posters (pictures) and flashcards (cards) as well as technology-based media such as speakers, game playback, animated films and videos on LCD screens available in each class. These media are

considered important to attract students' learning interest and accelerate understanding, but the frequency of their use by English teachers depends on the material taught, time and experts available, because using media is time-consuming and experts are not always ready in front of the class because they are also on duty in other classes.

Another previous study conducted by researcher (Fatoni & Cahyono, 2021) entitled *"Efektifitas Permainan Dhako Pada Pembelajaran Berhitung Dalam Bahasa Inggris (Mathematic) Bagi Siswa Kelas 5 SDN Aengdake I"* stated that dhako effectively increases students' vocabulary mastery, especially in mathematics. The research concluded that there is a significant difference in effectiveness (real) between the use of dhako games in learning to count in English (mathematic) and not using dhako games in learning to count in English (mathematic) for students. It proves that *dhako* can be used as learning media.

Based on the previous result, it can be concluded that modifying the game of *dhako* increases students' vocabulary and numeracy in English, including addition, subtraction, multiplication, and division. The student's numeracy skills improved during the game. Besides that, they memorize the number vocabulary easily. Providing learning media is an essential way to get maximum achievement in learning process. The guidance in learning process by using *dhako* with tips and trick helps teacher to run the learning. Understanding various factors affecting motivation to learn is crucial for student in comprehending learning material. Improving student's achievement in learning English shows the teacher ability in combining intelligence, performance, and skill.

CONCLUSION

This study used a one-group pretest-posttest design with statistical test analysis T-test. Based on the results of the descriptive analysis, the students' mean pretest = 74.47 and posttest = 89.76. Based on the results of descriptive analysis, the students' mean pretest = 69.56 and posttest = 91.35. Thus, it can be concluded that giving the *dhako* game with a PBL approach has a significant effect on English numeracy skills. Based on the output table of the t-test results, the value of sig = 0.000 is obtained, which means it is smaller than 0.05. Thus, Ho is rejected and Ha is accepted, meaning that there is an effect of the *dhako* game with the PBL approach on improving English numeracy skills for fifth graders at SDN Aengdake I.

The study is expected to be reference for teacher in developing their skill in teaching. Using *dhako* as traditional game as learning media indicates that the process runs effectively. It needs a cheap cost, and the most important is *dhako* is easy to play. The students have been familiar with the game. The teachers should explore their experiences to find other traditional game as learning media.

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