

IMPLEMENTATION OF THE CALISTUNG PROGRAM FOR INCREASING LITERACY AND NUMERACY IN EARLY CHILDHOOD

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ABSTRACT

The aim of this research is to describe numeracy literacy in learning themes in early childhood and strategies for learning numeracy literacy in early childhood. This research was conducted through literature study. The object of this research is numeracy and thematic literacy in early childhood. Numeracy literacy is not the same as mathematics competency, both are based on the same knowledge and skills, but there are differences that lie in the empowerment of knowledge and skills. The data collection tool in this research is by searching for journals in several electronic media such as digital libraries, the internet, via Google Scholar. The data analysis technique used in this research is annotated bibliographic analysis. The results of the research show that numeracy literacy in thematic learning in early childhood can be done by providing stimuli to children. This aims to stimulate students' curiosity supported by the availability of facilities and infrastructure, the capacity of the school community, and the capacity of stakeholders. There needs to be a policy related to the literacy work program on numeracy twice a week before learning time takes place where mathematics and non-mathematics teachers are trained, so that it fosters a love of reading in students and a learning experience that is both fun and stimulates the imagination.

Keywords: Calistung, Literacy, Numeracy

INTRODUCTION

Early childhood education can take place anywhere, from the family environment, school to community. The role of various parties is needed so that the potential development of early childhood can be maximized. Education for early childhood is not only the responsibility of parents, but also PAUD teachers as parents of students at school. One of the skills that needs to be developed, especially for young children, is literacy skills. The National Literacy Movement put forward by the Ministry of Education and Culture is an effort to expand the involvement of various parties in growing, developing and civilizing literacy in Indonesia, Kemendikbud (Anwar, 2018). Children in elementary schools, especially in the 3T (Disadvantaged, Outermost and Frontier) areas before and after the pandemic, are now experiencing obstacles in learning such as limited access to computers and smartphones, while teachers have to be creative and adapt to technology (Shabrina, 2022). These students will later be assisted by Teaching Campus Students to turn challenges into hopes. The implementation of the Teaching Campus program is supported by the

Education Fund Management Institute (LPDP). Students from various parts of Indonesia in this twelve week program should be able to create, collaborate and act to support improving the quality of learning in elementary schools, especially in the 3T area and also hone social sensitivity, emotional maturity and leadership (Shabrina, 2022).

Activities are carried out to assist teachers in carrying out learning, especially training students' skills in literacy and numeracy. Early childhood education has a strategic role in shaping children's character. Early childhood education is one of the basic milestones of higher education, (RK & Watini, 2022; Wahyuni, 2022). Numeracy literacy skills provide benefits to help solve human life problems, but only a small portion of us utilize numeracy literacy skills. Most basic mathematical concepts such as counting have been mastered, while the application of basic mathematical concepts to everyday life and problems has not been taught to children optimally (Ari Wahyuni, Yeni Widiyawati, Indri Nurwahidah, 2022; Sugiono & Kuntjojo, 2016). Meanwhile, in the view of (Dantes & Handayani, 2021; Sri Hartatik, 2020), literacy culture in Indonesia is very interesting to study considering that Indonesia has a literacy culture that is still low, not yet ingrained, and has not been cultivated in society. The presence of books in the midst of cultural developments is now not a top priority. Some people find it faster to absorb the culture of listening and speaking, compared to reading and then putting the results of the reading into writing. Learning in elementary schools in improving students' abilities is not limited to referring to knowledge, but also teaches skills. In this regard, students must be able to master language skills (Janah, Suyitno, & Rosyida, 2019; Shabrina, 2022).

(Aningsih, 2018; Dwi Noerbella, 2022) explains that language can express thoughts and ideas in the mind. Interrelated language skills consist of four skills, namely reading, writing, speaking and listening. In real conditions, numeracy skills are always associated with mathematics so that many students do not like this aspect. Numeracy is different from mathematical competence. These two things are based on the same skills and knowledge, but the difference between the two is in the empowerment of these skills and knowledge. A person does not necessarily have the ability to numerate with just knowledge of mathematics. This numerization consists of the skill of applying mathematical rules and concepts in real everyday conditions, when problems are often irregular, have various solutions (Ratnasari, 2020; Sudarti, 2022), or a complete solution does not exist, and involve non-mathematical factors. According to a quote from (Afifah & Hartatik, 2019; Afianti, 2023) Literacy and numeracy are fundamental competencies that have an important role in determining the quality of a nation. In the field of education, especially at the basic education level, literacy and numeracy competencies are used as the focus of learning and are set as competency standards that students must have. Literacy and numeracy can provide provisions for students to adapt to life outside the classroom. However, in fact, the literacy and numeracy competencies of students in Indonesia are still low and education has not developed as it should, so it is far behind other countries. This low competency is based on the results of research conducted by CSSU (Central Connecticut State University) in 2016 which showed that out of 61 countries, Indonesia was in 60th place in The World's Most Literate Nations mmeelliimm (Anwar, 2018; Putri, Adriany, & Romadona, 2020).

In another study in 2018, quoted from (Dwi Noerbella, 2022) the Organization for Economic Cooperation and Development (OECD) released the results of the PISA (Program for International Student Assessment) scores which stated that the basic literacy level of Indonesian students was in 70th position out of 78 participating countries, with a

percentage of approximately 25% of students who have reading competence and 24% of students who have mathematics competence (Aningsih, 2018; Habibi & Suparman, 2020). Then, according to Belfali, students in Indonesia's understanding of multiple texts is still weak so they are less able to understand and process information, Kemendikbud, 2019 (Wardhani et al., 2022). This indicates the low literacy and numeracy skills of students and the quality of learning in Indonesia, especially in literacy, science and mathematics learning (Ricu Sidiq & Najuah, 2020).

This condition is not a good thing, especially according to Havighurst, students' literacy and numeracy skills are really needed, so that if they are not met, it will cause discomfort to the child as well as hinder the opportunity to grow and develop in a quality manner at the next stage of life (Rohim, 2021; Sugiono & Kuntjojo, 2016). Apart from that, young children can start learning numeracy literacy from the simplest things. Introduction to numeracy from an early age can be started by learning while playing so that children do not get bored easily. The most important thing about learning numeracy literacy in early childhood is to instill the concept of numeracy itself. Numeracy literacy is the ability to use numbers, data or mathematical symbols. Literacy and numeracy development are interrelated (Ayuni & Watini, 2022; Wahyuti, Purwadi, & Kusumaningtyas, 2023). Many educational researchers focus on literacy learning in early childhood. Numeracy literacy is one of the essential abilities that must be improved and developed to advance education in Indonesia.

Therefore, there is a need to reflect on the process of Mathematics education and learning in schools. Minimum Competency Assessment (AKM) is an effort to capture students' numeracy skills so that students are able to face developments in science, information flow and communication in the 21st century. Furthermore, based on literature studies, efforts can be made to: improve numeracy skills by providing material and integrating learning with an ethnomathematics approach, providing higher order thinking skills (HOTS) related to real life, and utilizing interactive learning games (Hidayah, Kusmayadi, & Fitriana, 2021; Kamarullah, 2017). Nowadays, to be able to teach numeracy and science literacy to young children requires a proper understanding of the literacy movement. Based on the results of the preliminary study, there are still many PAUD teachers who do not understand the national literacy movement (GLN), especially numeracy and science literacy.

METHOD

This research is a literature review research with a qualitative approach which will be described descriptively. The literature study method is an activity related to reading and recording the results of library data collection and processing it to be used as research material (Sari, Tussyantari, & Suswandari, 2021). The use of a qualitative descriptive approach is carried out with the aim of describing in detail and clearly the research results to support and increase the reader's understanding of the research study being conducted. Data collection techniques are carried out by understanding and analyzing data sources originating from scientific articles, papers, proceedings and books that are appropriate to the research focus. The data that has been obtained will be analyzed in stages (1) Reading and understanding all studies and sorting them to be adjusted as relevant data in this research. (2) Read the abstracts of all studies to find out the overall picture of the research so that you can assess whether it is appropriate to the object of the study you wish to conduct. (3) Note

important points and adapt them to the research study and note down the source of the information to be included in the bibliography (Hidayah et al., 2021). The next step is to synthesize ideas or solution ideas from various problems that are reference sources that are collected systematically. So it is hoped that this will be the best solution that can be done to improve literacy and numeracy in early childhood.

DISCUSSIONS

Literacy dan Numeracy

As stated by (Janah et al., 2019; RK & Watini, 2022) the term literacy has expanded its meaning. Literacy, which was previously defined as the ability to read and write, is now linked to skills in certain areas. In Indonesia, the meaning of literacy is increasingly developing. The developments that emerged were based on awareness of the importance of the nation's progress with literacy. Conveyed in several literatures, literacy is the most up-to-date tool in boosting the success of a country to become superior and advanced. The existence of literacy encourages individual, community and nation excellence in a better quality country. In this regard, the Ministry of Education and Culture hereby makes literacy an assessment parameter for students. In its policy, the Ministry of Education and Culture states that there are six literacy skills that students and society need to have today. The six literacy skills include: reading and writing literacy, SCIENCE literacy, numeracy literacy, digital literacy, financial literacy, cultural and civic literacy. Literacy is crucial in facing the era of society 5.0. In this era, all technology is part of humans themselves, the internet is not only used as a means of sharing information. More than that, technology has become an inseparable part of human life. In this era, humans are able to create new value through technological developments. Future predictions, the economic problems faced by humans can be well controlled. Lange stated that numerical literacy in mathematics is characterized by several main competencies, namely: (1).

Mathematical thinking and reasoning, which includes the ability to ask mathematical questions; know the number of answers that mathematics can offer; understand the breadth and limitations of mathematical concepts and be able to work around them. (2). Having mathematical arguments, namely knowing what is meant by proof; know the difference between proof and other mathematical reasoning; able to follow and evaluate sequences in ideas; able to create and understand mathematical ideas. (3). Mathematical communication, namely being able to express ideas in various forms, both verbally, written and other visual forms; understand the results of other people's work. (4). Modeling, namely the ability to translate reality into mathematical form; preferably, interpreting mathematical models in their context or reality; working with models; testing (validating) the model; give suggestions. (5). Posing and solving problems, including the ability to pose, formulate, define and solve problems in various ways. (6). Representation, namely the ability to translate, differentiate and interpret forms of mathematical representation and objects or situations, as well as understanding the relationships between different representation (Latif, 2017; Noviantii, Yuanita, & Maimunah, 2020)

Numeracy literacy skills relate to the ability to apply basic knowledge, mathematical principles and processes to problems in everyday life, for example understanding problems presented in tables or diagrams, trading and so on. Numeracy literacy is different from mathematical competence, where the difference lies in the use of concepts and knowledge

possessed. Knowledge of mathematics is not enough to make someone have numeracy abilities. Numeracy literacy is needed to solve problems that require many ways of solving, unstructured problems, as well as problems that have no complete solution and are not related to non-mathematical factors (Aningsih, 2018; Ari Wahyuni, Yeni Widiyawati, Indri Nurwahidah, 2022; Dantes & Handayani, 2021). As part of mathematics, numeracy literacy is a skill that students must have. Different from mathematics learning patterns, numeracy literacy skills can help students to solve mathematical problems in their daily lives. So that the concept of mathematics learning which refers to the ability to formulate, use and interpret mathematics in various contexts will be integrated into more real problem solving. In this case, students will be encouraged to be able to think mathematically, using the concepts they have acquired to then become problem solving tools (Fardani, Surya, & Mulyono, 2021; Vahrum & Rahaju, 2016). Referring to the descriptions above, it can be concluded that numeracy literacy ability is an ability to collaborate mathematical knowledge to answer all the problems of daily life. In this regard, students are expected to be able to use various basic mathematical concepts that they have acquired to develop the reasoning process so as to produce problem solving that provides solutions to everyday needs.

The basic mathematical concepts covered in this discussion usually consist of forms (graphs, tables, charts, etc.) which are then interpreted in the results of the analysis for decision making purposes. In order to measure this ability, several indicators are needed that are used as a reference for measuring numeracy literacy skills as contained in the OECD (Organization for Economic Co-operation and Development). Some of these indicators include: 1) mathematical ability; 2) communication skills; 3) reasoning and argumentation abilities; 4) representation ability; 5) the ability to choose the right strategy in problem solving; 6) ability to use language, symbolic, formal and technical operations; 7) the ability to use mathematical tools (Afrianti, 2023; Farikhah & Ariestina, 2020). Numeracy literacy consists of three aspects, namely counting, numeracy relations, and arithmetic operations. Numeracy is the ability to count objects verbally and the ability to identify the number of objects. Numeracy relations relate to the ability to differentiate the quantity of an object such as more, less, taller, or shorter. Meanwhile, arithmetic operations are the ability to carry out basic mathematical operations in the form of addition and subtraction. The three aspects of numeracy literacy that have been described previously are basic aspects in mathematics learning that are important to introduce from an early age until children enter the lower grades (Peirce, 2013).

According to UNESCO data quoted from (Habibi & Suparman, 2020) Indonesian people's interest in reading is only 0.001%. This means that out of 1,000 Indonesians, only 1 person is an avid reader! This is a disappointing number because it means that the reading culture of Indonesians is still small. Research entitled *World's Most Literate Nations Ranked*, conducted by Central Connecticut State University, Indonesia was stated to be ranked 60th out of 61 countries regarding interest in reading. In fact, if you look at book fairs, they are always crowded with lots of children who are enthusiastic about reading. It turns out that the cause of low interest and reading habits is due to lack of access, especially for Indonesian people who live in remote areas. This is one of the things revealed by the Reading Literacy Activity Index (Alibaca) of the Ministry of Education and Culture, Kemendikbud (Rahmawati, 2021).

Implementation of the Calistung Program to Improve the Literacy and Numeracy of Lower Class Students using Contextual Learning Learning Methods

The learning model that is considered effective in training the numeracy literacy skills of low grade students is by implementing a contextual learning model. Contextual learning is based on the idea that meaning emerges when there is a relationship between content and context. The contextual learning model will make students active during the learning process. This is in line with research by (Surata, 2019) that contextual learning will encourage active learning. Active learning is a teaching and learning system that emphasizes student activity physically, mentally, intellectually and emotionally in order to obtain learning outcomes in the form of a combination of cognitive, affective and psychomotor aspects. The more connections students find in a context, the more meaningful the content is for them. student. The more students are able to connect learning material with the existing context, the more meaning they will gain from the learning.

Contextual learning focuses more on the relationship between the material students study and its practical uses in everyday life. Contextual learning is learning that is linked to real life in real terms, the knowledge gained by each individual develops according to the experience they have experienced, the final goal is self-satisfaction (Mulhamah & Putrawangsa, 2016). The importance of students' numeracy literacy skills is very influential in learning objectives. Numeracy literacy is contextually practical, related to understanding issues in communication, professionalism in work, recreational and cultural. This presentation shows that the scope of numeracy literacy is very broad, not only in mathematics subject matter, but also includes other literacies. Numeracy literacy is defined as the ability to apply number concepts and calculation operation skills in daily life and the ability to interpret quantitative information in the student's environment. According to (Ratnasari, 2020) define numeracy literacy as knowledge and skills to (1) use various kinds of numbers and symbols related to solving practical problems, and (2) analyze various information displayed in the form of graphs, tables, diagrams, or chart then uses the results of the interpretation to predict and make decisions.

Problems faced by teachers and solutions implemented in implementing the CALISTUNG method

A lack of teacher knowledge regarding various variations of CALISTUNG learning and maximizing learning media was identified. Each of these issues is discussed in detail as follows.

In efforts to overcome the problems mentioned above, there are various methods or techniques used, including the following: (1) The teacher tries to coordinate the class and can attract the attention of the children so they can follow the teacher's orders, (2) Invite them to do fun activities, for example being given clapping and singing, (3) The teacher advises the children and invites them to tell stories, (4) The children are given prizes/stars if there are children who do well, (5) The children are divided into 2 groups, each teacher holds 1 group, (6) The teacher gives repeated examples so that the child wants to do the work, (7) Approaching a child who is too active and then holding him on his lap while showing a picture, (8) The teacher conditions the child to remain calm by giving rewards to those who want to sit still, and (9) The teacher repeats the vocabulary so that the child responds (Farikhah & Ariestina, 2020; Rachman, 2019). Judging from how to overcome existing problems, teachers seem to pay less attention to aspects of children's intrinsic motivation.

Strong intrinsic motivation will encourage children to learn without external coercion. Such children usually consciously pay attention to the teacher's explanation. They are more curious about the subject matter provided. Various sound disturbances and those around them are less able to influence children and are less able to distract them. Reading motivation is very important for children as a foundation to help children become lifelong learners because books are windows to the world that will take anyone anywhere (Rachman, 2019; Sugiono & Kuntjojo, 2016). Efforts to foster an interest in reading in children require the willingness of parents to provide quality books for them to read at home. This situation is a form of collaboration between the school and parents regarding the introduction of Calistung abilities to children. Schools introduce various learning methods and media, while parents also make efforts to introduce Calistung abilities to their sons and daughters by providing various dancing books, willingness to read to them, and several efforts that have been discussed above.

CONCLUSION

The process of implementing the calistung program trains and improves the numeracy literacy skills of young children who have learning difficulties in reading, writing and arithmetic. By providing additional hours to the students and providing material information before implementation and providing learning media that suits the students' needs. However, the lack of school facilities means that they cannot display media in the form of media and sound. In training and improving the numeracy literacy skills of low students, there are several obstacles faced by teachers, the character of students is very diverse, such as students who are active and inactive, which makes a difference so that this can hinder the process of implementing calistung in elementary schools

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