

## IMPLEMENTATION OF NUMERACY LITERACY TRAINING FOR TEACHERS AND ITS ACHIEVEMENT IN CENTRAL MALUKU REGENCY

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### Abstract

*The achievement of learning outcomes from the 2022 public education report card issued by the Pusmendik Kemdibudristek at the elementary and junior high school levels for the Central Maluku Regency, obtained less than 50% have reached the minimum competency limit for reading and arithmetic literacy, this is below the minimum competency for literacy and numeracy skills. Therefore, it is essential for activities regarding the development of teacher quality in dealing with the learning process, especially in literacy and numeracy abilities. This service activity aims to provide benefits to teachers in implementing numeracy literacy in the learning process to improve student learning outcomes, especially in numeracy literacy skills. This service is carried out using a training method with stages: Exposure to numeracy-based learning, workshops on writing numeracy literacy questions, and evaluations. The service activity occurred at SMP Negeri 38 Maluku Tengah, which acted as a partner. The training was attended by 30 elementary and junior high school teachers throughout Central Maluku Regency. The evaluation was conducted to see the achievement of the activities. The results obtained an average of 90.92% during the implementation of service with planning and received a good appreciation from the participants, namely teachers in Central Maluku Regency.*

**Keywords:** learning, literacy, numeracy



## 1. INTRODUCTION

Learning in schools to improve student's abilities is not limited to knowledge but also teaching skills. Related to this, students must be able to master both literacy and numeracy skills that are compatible. Numeracy literacy skills are needed to solve everyday problems by using mathematical knowledge of symbols and numbers and analyzing information displayed in various forms (graphs, tables, charts, etc.,) (Han et al., 2017). Patriana (2021) explains that to make it easier for someone to understand mathematics, logical thinking is needed to support numeracy literacy skills so that it will be helped in understanding the material, analyzing problems, and solving problems.

The results of the 2018 PISA test show that the literacy ability of Indonesian students ranks 6th from the bottom with an average score of 371. Meanwhile, mathematical knowledge is ranked 7th from the bottom with a score of 379, down from the previous ranking in 2015 (Schleicher, 2019), while the TIMSS 2015 International Results in Mathematics, Indonesia got a math score of 397 from the highest score achieved by Singapore, which was 618 (Mullis et al., 2015). This is because the questions tested in TIMSS and PISA are mostly contextual problems related to real-world problems. While students have not been able to solve contextual problems, even most Indonesian students have not been able to analyze information in various forms (Ambarwati & Kurniasih, 2021). These results also indicate that the occurrence and low literacy-numeracy abilities of Indonesian students.

Based on the achievement of learning outcomes from the 2022 public education report cards issued by the Pusmendik Kemdibudristek at the elementary and junior high school levels for the Central Maluku Regency, it was obtained that less than 50% had reached the minimum competency limit for reading and arithmetic literacy, this is below the minimum competency for literacy and numeration skills.

The main reason that causes students to be still not able to solve problems based on numeracy literacy is the teacher who has not studied literacy-based questions. This is because many teachers are still unable to compile numeracy literacy questions, so students are more accustomed to solving these non-routine questions. Teachers tend to make routine questions that are closed and can be directly solved by using a formula (Kartikasari et al., 2016).

Literacy and numeracy skills are essential to access more comprehensive educational programs because they can be used in many aspects of our lives. However, many students still do not have good literacy-numeracy skills (Fiangga et al., 2019). Therefore, the focus on improving the quality of teachers to improve students' abilities in numeracy literacy is essential; therefore, the authors carry out numeracy literacy-based learning training for teachers in Central Maluku Regency.

This training can provide new insights or knowledge for teachers in Central Maluku Regency in applying literacy-numeracy, especially in designing questions related to literacy-numeracy. This activity is expected to benefit teachers in implementing literacy in the learning process to improve student learning outcomes, especially in literacy-numeracy abilities.

## 2. METHOD

The Community Service (PKM) includes (1) exposure to numeracy literacy-based learning. This activity presented examples of numeracy literacy-based questions and (2) a workshop on writing numeracy literacy questions for teachers in Central Maluku Regency. In this activity, the teacher is divided into small groups (3-4 people) to choose a context and develop numeracy literacy questions based on the selected context.

The targets for this PkM are elementary and junior high school teachers in mathematics in Central Maluku Regency. The method used to achieve the objectives of this activity is through lectures and workshops on numeracy-based learning for teachers who go through the following stages:

1. Presentation of learning based on numeracy literacy for teachers in Central Maluku Regency. At this stage, the resource persons conveyed numeracy literacy-based learning and several

discussions about which could be a reference in compiling numeracy literacy in mathematics learning.

2. Workshop on writing numeracy literacy for teachers in Central Maluku Regency. In this activity, participants, guided by resource persons, develop numeracy literacy questions that can be applied to certain mathematics materials in class.
3. Evaluation of the activities that have been carried out by looking at the indicators of achievement of the activities that have been carried out, as well as providing an understanding to the teacher that literacy-numeracy must be applied in learning even though the training has ended.

Furthermore, in implementing the achievement of community service, ten indicators of achievement were used using a modified four-Likert scale model as follows.

**Table 1.** Likert scale

Symbol	Category	Score
SB	Excellent	4
B	Good	3
KB	Average	2
SKB	Poor	1

The following formula carries out the percentage of each indicator of respondents' answers.

$$\text{Percentage of Each Indicator} = \frac{(F1 \times 1) + (F2 \times 2) + (F3 \times 3) + (F4 \times 4)}{4} \times 100\%$$

where:

- F1 is the frequency of respondents who answered 1 (Poor)
- F2 is the frequency of respondents who answered 2 (Average)
- F3 is the frequency of respondents who answered 3 (Good)
- F4 is the frequency of respondents who answered 4 (Excellent)

The percentage formula above is the data obtained from the answers to the questions asked. The results of these calculations are then compared with the established criteria. Achievement criteria can be seen in table 2 below:

**Table 2.** Achievement Assessment Criteria

Percentage (%)	Category
$81.25 \leq \text{Value} \leq 100$	Excellent
$62.5 \leq \text{Value} < 81.25$	Good
$43.75 \leq \text{Value} < 62.5$	Average
$25 \leq \text{Value} < 43.75$	Poor

### 3. RESULTS AND DISCUSSION

The numeracy literacy-based learning training for teachers in Central Maluku Regency was carried out in the form of dedication from Pattimura University. This service activity was attended by 30 teachers and was held on 15-17 September 2022 at SMP Negeri 38 Maluku Tengah. This activity discusses numeracy literacy-based learning and writing about numeracy literacy.

#### Numeracy Literacy-Based Learning


In general, numeracy literacy-based learning is based on and aims for students to:

1. He can solve simple problems in everyday life and can apply his experience in a social environment.
2. Can think logically by understanding differences, classifications, patterns, planning, cause and effect, and initiatives.
3. Can think symbolically, which includes the ability to recognize letters, apply number consoles and be able to represent various kinds of objects and their imaginations

4. Can be responsible for themselves and others by understanding their rights, obeying the rules, self-regulating, and being responsible for their behavior.

Implementing numeracy literacy in learning cannot separate students' efforts in creating models, media, and learning methods. One of them is learning to read because it plays an essential role in life and increases knowledge. The basic principle of numeracy literacy is contextual. Thus the questions given to students aim to explore things related to students' daily lives through story questions. An example is presented when providing training as follows.

**Perhatikan informasi berikut untuk soal nomor 1-3**



Gambar tersebut menunjukkan permen Jeli tusuk dengan isi yang berbeda. Setiap tusuk terdiri dari beberapa buah permen jeli dengan warna yang sama. Satu tusuk isi 3 permen dijual dengan harga Rp. 2.000,- dan satu tusuk isi 5 permen dijual dengan harga Rp. 3.000,-

1. Ita membeli 2 tusuk permen isi 5 dan 5 tusuk permen isi 3. Ita membayar dengan 2 lembar uang sepuluh ribuan. Uang kembalian yang diterima Ita adalah..
2. Adi mempunyai RP. 12.000,-. Ia ingin membeli jeli seperti pada Gambar untuk 2 adiknya. Supaya kedua adiknya mendapat permen sama banyak, maka permen apa saja yang harus dibeli Adi?
  - a. a tusuk masing-masing isi 3 permen
  - b. 3 tusuk isi 5 permen dan 1 tusuk isi 3 permen
  - c. 2 tusuk isi 5 permen dan 3 tusuk isi 3 permen
3. Surti mempunyai uang senilai Rp. 20.000,-. Ia ingin menggunakan uang tersebut sebanyak-banyaknya untuk membeli permen dan membagikan kepada 6 orang temannya sama banyak. Permen apa yang harus diberli surti? (Jelaskan alasan)

**Figure 1.** Example of numeracy literacy questions

Numeracy literacy-based learning allows students to engage with real problems in various contexts to consolidate and expand their numeracy skills. Thus, numeracy literacy will result in understanding mathematical terminology and numerical and spatial information communicated in tables, graphs, diagrams, and text. Numerical literacy will develop the use of basic mathematical skills in analyzing critical situations and creatively solving everyday problems.



**Figure 2.** Presentation of learning materials based on numeracy literacy

### Writing Numeracy Literacy Questions

The writing training on numeracy literacy was carried out in two stages. The first stage was a workshop to provide materials related to writing on numeracy literacy and the practice of making literacy questions by teachers. This material is presented with theories used as the basis for making numeracy literacy. After the teachers understand some of the material, then the teachers are allowed to practice making numeracy literacy questions in groups that have been distributed.



Figure 3. The teacher makes numeracy literacy questions in groups

Numeracy literacy questions are made under the theories that have been described. The basis for making the next task becomes a task that must be conveyed to other teachers so that each teacher in the group understands the concept of numeracy literacy.

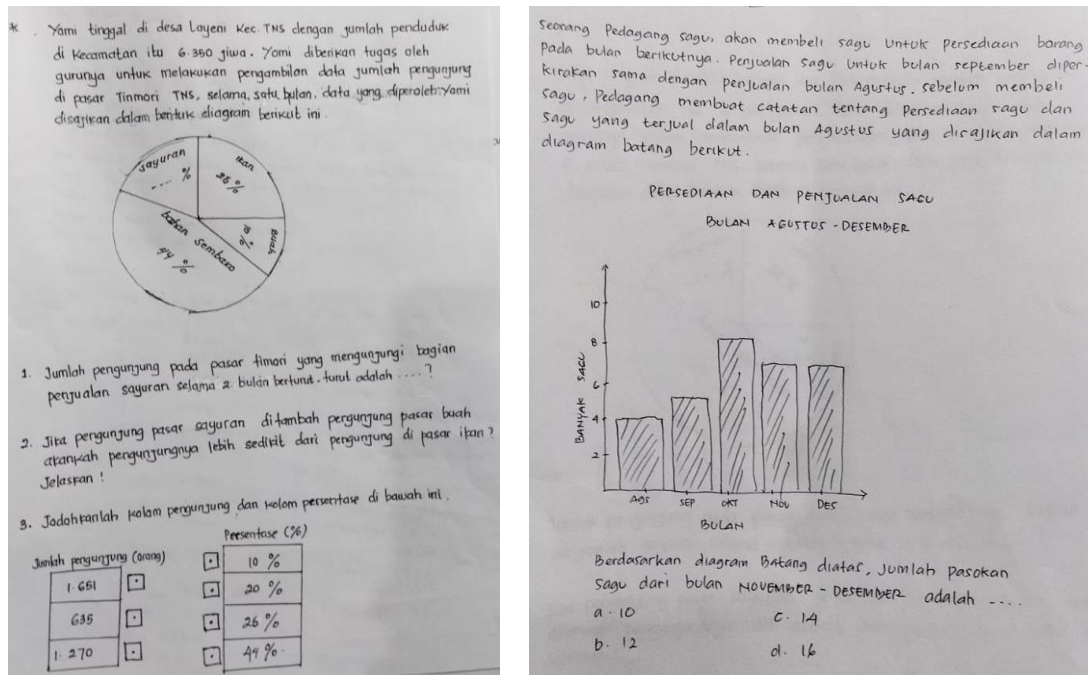


Figure 4. Results of making numeracy literacy questions in groups

### Evaluation of Training Implementation

At the end of the implementation of the service is an evaluation. The team evaluates the activities that have been carried out to see the achievements of the activities that have been done. At this stage, the team distributed a questionnaire containing statements relating to the implementation of the service. The results of the questionnaire analysis can be seen in Table 3 below.



**Table 3.** Questionnaire analysis of the implementation of service

No	Indicator	Percentage (%)	Category
1	The service team is well prepared	95	Excellent
2	The material delivered is under educational needs	94.17	Excellent
3	The material presented is explicit and accessible	91.67	Excellent
4	Service activities that have been carried out provide benefits for participants.	92.50	Excellent
5	The time provided is under the delivery of the material.	85	Excellent
6	The material presented is under the expectations of the participants.	90	Excellent
7	Given the opportunity to practice during the activity	92.50	Excellent
8	Every question that is asked is followed up properly by the presenters/service members involved	88.33	Excellent
9	The training participants are generally satisfied with the service of the service team.	87.50	Excellent
10	Training participants benefit directly from the service activities carried out.	92.50	Excellent
<b>Average</b>		<b>90.92</b>	

Based on Table 3, it can be seen that for each indicator of the achievement of service implementation, an average of 90.92% is in the excellent category. Thus, it can be said that the service activities have been carried out well and under the plan and received good appreciation from the participants, namely elementary and junior high school teachers in Central Maluku Regency. This activity received a warm welcome from the participants because, currently, increasing student literacy is a national problem that must be considered together. According to Kirsch & Jungeblut (1986), literacy is a person's ability to use the information to develop knowledge so that it brings benefits to society. Literacy has an important influence on the success of the nation's generation. Good literacy skills will help the nation's generations to understand the information well. In life, mastery of literacy is essential in supporting the competencies possessed (Irianto & Febrianti, 2017). Even though the training activities have ended, the service team hopes that the implementation of literacy and numeracy in learning will continue to be carried out so that students can take the Minimum Competency Assessment (AKM) even though the teachers have not been able to use the AKM Class application to the fullest.

#### 4. CONCLUSION

The service activities for the numeracy literacy-based learning training in the learning process for teachers in Central Maluku Regency have been well implemented. The teachers already know and know about how to make numeracy literacy questions. Based on the results obtained, it can be stated that this community service activity can be carried out well. This can be seen from the average achievement percentage in the implementation of community service of 90.92%. This community service activity is expected so that the implementation of numeracy literacy is carried out continuously even though the training has ended.

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