



Assistance in Designing Elementary School Learning By Integrating Literacy and Numeracy

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Abstract: *In the era of the Industrial Revolution 4.0, the learning process must develop students' literacy and numeracy skills. Teachers need to design learning activities that integrate literacy and numeracy. Training and mentoring for teachers are required to understand the context of literacy and numeracy and how to create learning that incorporates literacy and numeracy. The problems experienced by these partners were used as the basis for the team to provide training and assistance to MINU KH Mukmin Sidoarjo teachers in the form of community service activities. This community assistance uses the Service Learning approach to enhance teachers' capacity in designing learning by integrating literacy and numeracy. The teacher's learning design is then implemented and evaluated. Based on the results of design analysis and observation of learning in the classroom, it can be concluded that teachers have been able to analyze and design learning by integrating literacy and numeracy.*

Introduction

In the era of the Industrial Revolution 4.0 that occurs in the 21st century, education needs to optimize various opportunities and existing resources ¹. The learning process must develop students' competence and equip them with 21st-century skills to survive ². These skills include constructing knowledge, solving real-world problems, communication, collaboration, using information and communication technology in learning, and self-regulation ³. These skills they help learners succeed academically and

¹ Peter Teo, "Teaching for the 21st Century: A Case for Dialogic Pedagogy," *Learning, Culture and Social Interaction* 21 (June 2019): 170–178.

² Areti Chalkiadaki, "A Systematic Literature Review of 21st Century Skills and Competencies in Primary Education," *International Journal of Instruction* 11, no. 3 (July 2018): 1–16.

³ Partnership for 21st Century Learning, *Framework for 21st Century Learning*, 2016.

are necessary to adapt and thrive in an ever-changing world^{4,5}.

In addition to 21st-century skills, students must have 21st-century competencies, including critical thinking and problem-solving, creativity, communication skills, and collaboration⁶. To achieve these competencies, students must have adequate literacy and numeracy skills and begin to be taught and trained to students since they are at the elementary level. Because, in essence, literacy and numeracy are not only useful for achieving competence but also useful for life in the future.⁷ explained that literacy and numeracy skills are very important in the 21st century because they contain skills for global demands, namely critical thinking skills, creativity, effective communication, and collaborative work⁸.

Literacy is the ability to read and analyze information and understand the concepts behind the writing, interpret analysis results, represent meaning, and solve problems. Meanwhile, numeracy is a skill in using various numbers and symbols to analyze⁹ and solve various contextual problems^{10, 11, 12, 13}, to prepare themselves to face and live life in the future^{14, 15, 16}.

Literacy and numeracy are the main components of the Minimum Competency Assessment activities since 2021¹⁷. Minimum Competency Assessment encourages

⁴ Partnership for 21st Century Learning, *Framework for 21st Century Learning*.

⁵ Namthip Ongardwanich, Sirichai Kanjanawasee, and Chanatip Tuipae, "Development of 21st Century Skill Scales as Perceived by Students," *Procedia - Social and Behavioral Sciences* 191 (June 2015): 737-741.

⁶ World Economic Forum, *The Future of Financial Service; How Disruptive Innovations Are Reshaping the Way Financial Services Are Structure*, 2015.

⁷ Sofie Dewayani, *Bahasa Indonesia Untuk SMP Kelas VI* (Jakarta: Pusat Kurikulum dan Perbukuan Badan Penelitian dan Pengembangan dan Perbukuan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2021).

⁸ Dewayani, *Bahasa Indonesia Untuk SMP Kelas VI*.

⁹ Kemendikbud, *Panduan Pengembangan Literasi Dan Numerasi Di Sekolah. Kementerian Pendidikan Dan Kebudayaan, Direktorat Jenderal PAUD, Dikdas, Dan Dikmen*, 2021.

¹⁰ Helen Forgasz and Jennifer Hall, "Learning about Numeracy: The Impact of a Compulsory Unit on Pre-Service Teachers' Understandings and Beliefs," *Australian Journal of Teacher Education* 44, no. 2 (February 2019): 15-33.

¹¹ Iddo Gal and Dave Tout, "Comparison of PIAAC and PISA Frameworks for Numeracy and Mathematical Literacy," *OECD Education Working Papers* (2014).

¹² Weilin Han et al., *MATERI PENDUKUNG LITERASI NUMERASI* (Jakarta: Kementerian Pendidikan dan Kebudayaan, 2017).

¹³ Catherine Mimeo, Mike Coleman, and Chris Donlan, "The Role of Procedural Memory in Grammar and Numeracy Skills," *Journal of Cognitive Psychology* 28, no. 8 (November 2016): 899-908.

¹⁴ Abdul Halim Fathani, "PENGEMBANGAN LITERASI MATEMATIKA SEKOLAH DALAM PERSPEKTIF MULTIPLE INTELLIGENCES," *Edu Sains: Jurnal Pendidikan Sains Dan Matematika* Vol. 4, no. 2 (2016).

¹⁵ Nicolas Jonas, "Numeracy Practices and Numeracy Skills among Adults," *OECD Education Working Papers* (2018).

¹⁶ Mahdiansyah and Rahmawati, "Literasi Matematika Siswa Pendidikan Menengah: Analisis Menggunakan Desain Tes Internasional Dengan Konteks Indonesia," *Jurnal Pendidikan dan Kebudayaan* 20, no. 4 (December 2014): 452-469.

¹⁷ Nanda Novita, Mellyzar Mellyzar, and Herizal Herizal, "Asesmen Nasional (AN): Pengetahuan Dan Persepsi Calon Guru," *JISIP (Jurnal Ilmu Sosial dan Pendidikan)* 5, no. 1 (January 2021).

innovative learning to develop reasoning skills rather than rote memorization. Minimum Competency Assessment is an assessment of the basic competencies needed by all students to contribute to life in society in activities of positive value ¹⁸.

Literacy tests provide an overview of students' ability to understand a problem and take a stand on the issue ¹⁹. In comparison, the numeracy test provides an overview of the ability of students to understand a pattern of information data provided²⁰. The results of the Minimum Competency Assessment will provide information on the map of students' literacy and numeracy skills so that its implementation requires teachers to be more creative in compiling assessment instruments for students ^{21,22} stated that one indicator that can be used to determine the quality of a country's education is to look at the results of international student achievement assessments. Based on the results of the 2018 Programme for International Student Assessment (PISA), the average reading score of Indonesian students decreased and reached the lowest number in PISA 2018, which was 371 points. This score is the same as the Indonesian students' average score in the first PISA round 18 years earlier ²³. As many as 27% of Indonesian students are at level 1b, where at this level, students can only do the easiest text comprehension problems, have abilities in some basic sub-skills in reading literacy, but are unable to apply these skills to more complex texts ²⁴.

Meanwhile, in mathematics, Indonesia is ranked 72 out of 78 participating countries ^{25, 26}. PISA study findings show that Indonesia consistently ranks in the bottom 10% of countries ^{27, 28}. As many as 71% of students cannot reach the minimum level of competency in mathematics. This means there are still many Indonesian students who have difficulty dealing with situations that require problem-solving skills using

¹⁸ Kemendikbud, *Panduan Pengembangan Literasi Dan Numerasi Di Sekolah*. Kementerian Pendidikan Dan Kebudayaan, Direktorat Jenderal PAUD, Dikdas, Dan Dikmen.

¹⁹ Zainul Mustofa and Kunuk Yuli Kusniawati, "Pemetaan Awal Kemampuan Literasi Teks Fiksi Siswa Smk Dalam Menghadapi Asesmen Nasional," *Bahtera Indonesia Jurnal Penelitian Bahasa dan Sastra Indonesia* 8, no. 1 (2017): 1154–1163.

²⁰ Zainul Mustofa, "Kompetensi Numerasi Siswa SMK Ditinjau Dari Gender Dan Berbagai Kesulitannya," *Jurnal Pendidikan Matematika Universitas Lampung* 8, no. 4 (December 2020): 227–237.

²¹ Asrijanty, *Asesmen Kompetensi Minimum (AKM) Dan Implikasinya Pada Pembelajaran* (Jakarta: Pusat Asesmen dan Pembelajaran, 2020).

²² U Sumule, S M Amin, and Y Fuad, "Error Analysis of Indonesian Junior High School Student in Solving Space and Shape Content PISA Problem Using Newman Procedure," *Journal of Physics: Conference Series* 947 (January 2018): 012053.

²³ PISA OECD, *How Does PISA for Development Measure Mathematical Literacy* (Paris, 2019).

²⁴ Hadi Wuryanto and Moch. Abduh, *Mengkaji Kembali Hasil PISA Sebagai Pendekatan Inovasi Pembelajaran Untuk Peningkatan Kompetensi Literasi Dan Numerasi*, 2022.

²⁵ OECD, *How Does PISA for Development Measure Mathematical Literacy*.

²⁶ Nielda Junika, Nur Izzati, and Linda Rosmery Tambunan, "Pengembangan Soal Statistika Model PISA Untuk Melatih Kemampuan Literasi Statistika Siswa," *Mosharafa: Jurnal Pendidikan Matematika* Vol. 9, no. 3 (2020): 499–510.

²⁷ Ina V. S. Mullis et al., *TIMSS 2011 International Results in Mathematics*, 2011.

²⁸ Irma Risdiyanti and Rully Charitas Indra Prahmana, "Ethnomathematics: Exploration in Javanese Culture," *Journal of Physics: Conference Series* 943 (December 2017): 012032.

mathematics²⁹. The assessment results are a big responsibility for teachers to continue striving to improve students' literacy and numeracy skills. These improvement efforts can be started at the grade level by integrating literacy and numeracy in learning activities.

The results of an initial study conducted on teachers at MINU KH Mukmin Sidoarjo through interviews obtained data that 1) teachers have different perceptions from the actual definition related to literacy and numeracy, 2) in the design and implementation of learning, not all teachers have integrated literacy and numeracy activities. On this basis, the Unesa Community Service team has organized training and mentoring for MINU KH Mukmin teachers in Sidoarjo Regency to design learning by integrating literacy and numeracy. It is hoped that MINU KH Mukmin Sidoarjo teachers will be able to sustainably improve students' literacy and numeracy skills and integrate them by integrating literacy and numeracy in learning to impact student abilities and education report cards.

Method

This community service was implemented for the teachers of MINU KH Mukmin Sidoarjo. The objective of this community service is to organize intensive training and mentoring for the teachers of MINU KH Mukmin Sidoarjo to design learning by integrating literacy and numeracy using the Service Learning approach.

Community service activities are carried out in three stages, namely, the preparation stage, the implementation stage, and the evaluation stage. In the preparation stage, coordination with partners and preparation of training materials is carried out, consisting of descriptions related to literacy and numeracy in learning, reports of preparing lesson plans/teaching modules by integrating literacy, and descriptions of preparing lesson plans/teaching modules by integrating numeracy.

At the implementation stage, it was carried out in two sessions, namely the provision of material by resource persons which was then continued with assistance to teachers to design learning by integrating literacy and numeracy. At the evaluation stage, an evaluation was carried out on the ability of MINU KH Mukmin Sidoarjo teachers related to literacy and numeracy in learning. In addition, an assessment of the implementation of training activities was also carried out by providing questionnaires to participants containing participants' responses to plate activities.

²⁹ Wuryanto and Abduh, *Mengkaji Kembali Hasil PISA Sebagai Pendekatan Inovasi Pembelajaran Untuk Peningkatan Kompetensi Literasi Dan Numerasi*.

Result

Community mentoring activities for teachers of MINU KH Mukmin Sidoarjo to provide information and insight into designing learning by integrating literacy and numeracy are conducted through the Service Learning approach.

In the first, the preparation stage. The opening activity was filled with general information in the form of an introduction related to literacy and numeracy skills that teachers can develop by designing Teaching Modules/Learning Implementation Plans and implementing learning that integrates literacy and numeracy according to their levels.



Figure 1. First Material Exposure

In the second stage, some material is exposed. The first material is about learning and assessment, strengthening literacy and numeracy competencies. The second material is about literacy-integrated learning design. The third material is about numeracy integrated learning design. After the presentation of this material, it was continued with a mentoring session in designing integrated literacy and numeracy learning independently by participants.



Figure 2. Second Material Exposure

In the third stage, namely the evaluation of activities. This activity ended with a reflection on the achievements of activities related to the success/benefits obtained by participants while participating in community service; follow-up plans carried out by

participants after participating in training activities, and evaluation for further training activities. It ended with a documentation session in the form of a group photo.

Intensive mentoring activities were conducted for MINU KH Mukmin Sidoarjo teachers in compiling and applying learning designs by integrating literacy and numeracy that had been prepared in learning activities.

At this stage, trainees are tasked with compiling teaching modules integrating literacy and numeracy within one week. From this assignment, integrated literacy teaching modules were collected from phases A, B, and C with the subjects of Science, Indonesian, Pancasila Education, Sports Education, Al Quran Hadith, Jurisprudence, Arabic, English, Akidah Akhlak and Regional languages composed by 21 trainee teachers.

Based on the results of the analysis of literacy components and activities on teaching modules that have been prepared by training participants, it was found that all teachers have succeeded in compiling teaching modules that have included literacy content. Most reading texts used in the module are fictional texts with reading themes that are light, entertaining, and familiar with student life to arouse literacy interest in students.

LEMBAR KERJA PESERTA DIDIK (LKPD)
MENYEBUTKAN TOKOH CERITA BESERTA WATAKNYA

Nama:

Alat dan Bahan : Alat Tulis

Langkah-Langkah:

- Bacalah teks narasi.
- Tulislah tokoh dan wataknya!

Kelinci dan Kura-kura

Pada suatu hari, hiduplah seekor kelinci yang tinggal di dalam hutan. si Kelinci terkenal sebagai hewan yang bisa berlari dengan cepat dibandingkan dengan hewan-hewan lainnya di hutan.

Suatu ketika, Kelinci yang merasa kemampuannya semakin hebat dalam balap lari, mengajak Kura-Kura untuk bertanding. Kura-Kura yang rendah hati pun menyambut dengan antusias ajakan dari Kelinci. Akhirnya keduanya mempersiapkan balap lari tersebut dan ditemani oleh hewan-hewan lainnya yang ada di hutan.

Kelinci yang merasa lebih hebat berhasil lari lebih kencang dibandingkan dengan Kura-Kura yang pergerakannya amat lambat. Meski berjalan dengan pelan, namun Kura-Kura masih tetap bersemangat untuk mengikuti balap lari ini.

Ketika mendekati garis finish, Kelinci memutuskan untuk beristirahat di bawah pohon yang rindang. Kelinci yakin kalau Kura-Kura tidak akan bisa menyusulnya.

“Ah dia kan jalannya saja lambat,” ujar si Kelinci.

Tanpa sadar, Kelinci malah tertidur di bawah pohon rindang tersebut. Kelinci tidak menyadari saat dia tertidur, Kura-Kura sudah berhasil melewatinya dan sekarang posisi Kura-Kura lebih dekat dari garis finish. Kelinci sudah berusaha untuk berlari dengan cepat, tapi dia tetap tidak bisa menyusul Kura-Kura yang tiba tepat waktu di garis finish.

Sumber: <https://kumparan.com/mama-rempong/cerita-dongeng-anak-si-kelinci-dan-kura-kura-penuh-dengan-pesan-moral-1vo3vt7W0zi/full>

Figure 3. Examples of Fictional Text Content Used in Teaching Modules

The use of context has been accommodated in the teaching modules compiled by trainees. The most widely used context is the personal context. This is because, at the elementary school level, the personal context is a context that is easy for students to understand. After all, it is related to everyday life.

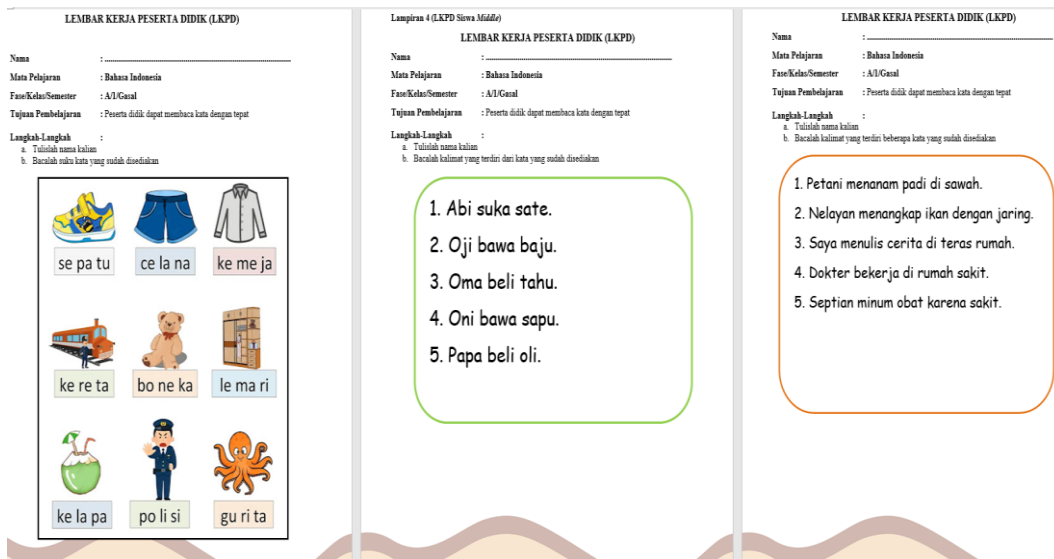


Figure 4. Examples of Personal Contexts Used in Teaching Modules

In the aspect of cognitive processes, the type of ability that most teachers use in the preparation of teaching modules is the ability to find information. This ability is a basic ability that students must have to strengthen numeracy skills at the next level.

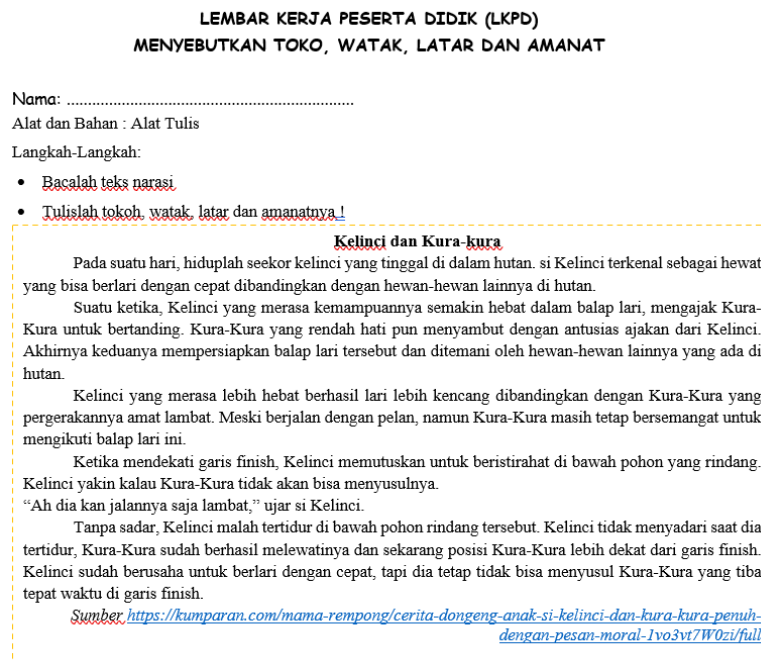


Figure 5. Examples of Aspects of Finding Information Used in Teaching Modules

In addition to successfully compiling teaching modules with literacy content, all teachers have also succeeded in compiling teaching modules with numeracy content. The results of the assignment have collected integrated numeracy teaching modules in phases A, B, and C prepared by six trainee teachers.

Based on the results of the analysis of the numeracy component contained in the module, it appears that the content used by teachers to prepare the module is number

content. This is by the flow of learning objectives that the teacher has made, namely the number element for the initial material of the school year, namely reading, writing, determining the place of numbers, comparing, sorting, arranging, and parsing the number of pieces.



Figure 6. Examples of Number Content Used in Teaching Modules

The numeracy context used by 6 teachers in designing the numeracy integrated teaching module is the personal context. The material for reading and writing numerical symbols according to learning outcomes in their phases is associated with the context of students' daily lives. This aims to make it easier for students to understand the relationship of the material with the surrounding context.

Pertemuan 1

- Kegiatan pendahuluan (10 menit)
 1. Guru mengucapkan salam dan berdoa bersama **dengan tertib** sebelum memulai pembelajaran.
 2. Siswa diberi ice breaking untuk membangkitkan semangat siswa.
 3. Guru mengaitkan pembelajaran dengan materi sebelumnya



Figure 7. Examples of Personal Contexts Used in Teaching Modules

The cognitive level teachers develop in designing teaching modules is integrated with numeracy, namely the level of knowledge and understanding, which is students' basic ability. Teachers develop students' abilities through reading and writing number symbols by the learning outcomes in each phase. Teachers also make initial learning assessments as prerequisite material that students must master. It aims to determine students' initial understanding of the previous material as a first step to facilitate students to achieve higher student knowledge and experience.

3. Guru membagikan benda-benda konkret dan LKPD untuk masing-masing kelompok.
4. Peserta didik diminta untuk menghitung dan menuliskan jumlah bilangan dari benda-benda konkret tersebut.
5. Selama peserta didik mengerjakan LKPD guru melakukan penilaian pada lembar observasi kepada siswa.
6. Peserta didik menunjukkan hasil pekerjaannya kepada guru. dan guru menilainya.
7. Peserta didik mengerjakan tugas secara mandiri tentang menuliskan nama dan lambang bilangan 1 sampai 10.
8. Selama peserta didik mengerjakan, guru mendampingi.

Figure 8. Examples of Cognitive Levels of Retention and Comprehension Used in Teaching Modules

After preparing the teaching module, the next stage is implementing it in learning. Implementing literacy-integrated teaching modules is carried out in grade 3 with science subjects and grade 5 in jurisprudence subjects. Class observation is also conducted at this stage to observe the learning process integrated with literacy. The statement was carried out on July 27, 2023, while the criteria followed include: (a) using reading strategies, namely finding information, understanding information, inferring, evaluating, and reflecting. (b) Using writing strategies, i.e., concept maps and mind maps. (c) Use content in the form of reading text. (d) Carry out activities that foster literacy.

The results of observations in grade 3 obtained information that (a) literacy activities that appear in learning, namely reading, writing, and discussing related to the growth characteristics of living things, questions and answers, and presenting the results of discussions. (b) The cognitive process of literacy developed, i.e., finding information. (c) The text of the data used is the stages of growth and development of plants, animals, and humans.

Things that need to be improved from the implementation are: (a) in the learning process, teachers can give more time to students to read and write down important things found. (b) Teachers can teach reading strategies to find information and infer. For example, by underlining important words or main sentences, (c) Teachers can teach writing strategies, namely writing keywords or conclusions using concept maps or mind maps.

The results of observations in grade 5 obtained information that (a) in the learning process, teachers use reading texts related to zakat fitrah to read and write down important information as material for making mind maps. (b) Activities that foster literacy are reading, writing, discussing, concluding, and presenting. And (c) the cognitive level developed i.e., finding information.

Two things need to be improved: (a) teachers need to strengthen students' understanding of mind maps and strategies for finding information in the reading texts read by students. (b) The text used may be added from other sources.

In addition to implementing the literacy-integrated teaching module, the implementation of the numeracy-integrated teaching module was also carried out. The performance of numeracy-integrated teaching modules is carried out in grades one and grade 6. Class observation is also conducted at this stage to observe the learning process integrated with literacy. The words were carried out on July 27, 2023, while the criteria followed include: (a) using the context of numeracy, (b) developing the cognitive level of numeracy, (c) using the mathematics learning stage, and (d) developing numeracy skills.

The results of observations in class 1 obtained information that (a) numeracy activities that have been seen to show the understanding of number sense, namely numbering, reading, and writing numbers; (b) The cognitive level that has been seen is the level of knowledge for remembering and counting; (c) The learning stage has been seen for the concept planting stage with learning activities to count many sticks and stones and write down the results in the available LKPD with number symbols and number names; and (d) in the learning process using a personal context that is counting shirt buttons.

Two things need to be improved: (a) using a more contextual context in learning, such as personal and socio-cultural contextual learning, and (b) strengthening the ability to solve problems by providing daily problems related to understanding number sense.

The results of observations in grade 6 obtained information that (a) in the learning process, teachers use socio-cultural contexts, namely information on data on COVID sufferers for each variant, and (b) teachers develop students' numeracy cognitive levels at the level of knowledge for number sense material.

Things that need to be improved from the implementation are (a) from the socio-cultural context in the form of data related to COVID sufferers for various variants, teachers can utilize the information contained in the text by connecting the material to be learned. (b) From the important information contained in the text, the teacher can use it and direct students to a more cognitive level.

Discussion

The description of the research results shows that students' numeracy literacy skills can be grown or improved by using learning media based on a scientific approach. This is in line with the research results of ³⁰ that the use of handouts based on a valid scientific approach can be used as alternative teaching materials which are expected to improve students' numeracy literacy skills in learning mathematics.

³⁰ K. Hasmawati, Agustan Syamsuddin, and Irwan Akib, "Validity Test on Scientific Approach Based Hand out Teaching Materials of the Property and Volume of Three Dimensional Shape for Elementary School Students' Grade V," *International Journal of Advanced Science and Technology* Vol. 29, no. 5 (2020): 12840-12850.

Based on research and training conducted by MINU teacher KH Mukmin Sidoarjo, he produced a media that is integrated with literacy and numeracy. The learning media that has been created is then applied to students to train students' literacy and numeracy. The implementation and observations that have been carried out in several classes have resulted in several main notes, namely that teachers need to provide guidance to students first in reading strategies and writing keywords or conclusions which can be assisted by using concept maps or mind maps. Approaching literacy as a social practice, it is essential to find meaningful ways to help literacy practitioners to support adult literacy skills, including reading skills. Adapting local culture and life skills to literacy skills, such as reading beliefs, can facilitate the improvement of adult literacy. Empirical evidence shows that culture determines people's level of literacy, including their reading skill ³¹; ³². Therefore, with learning assisted by teaching materials based on a scientific approach student are more challenged in finding the information needed in solving problems, being able to answer each problem well, being able to develop their reasoning power, being able to communicate well and fostering independent learning ³³.

This is consistent with the findings of ³⁴, which suggests that children with numeracy literacy abilities will be better prepared to confront the relatively quick and dynamic times of the twenty-first century. Furthermore, students will be able to think rationally, methodically, and critically when tackling current issues, allowing them to be confident in their solutions. As a result, the capacity to accurately comprehend the problem is required to maximise pupils' problem-solving process. ³⁵ expressed the same thing, that students should be able to build effective ways of comprehending difficulties in order to attain the aim of problem solving. As a result, a teacher's abilities are required to aid pupils in understanding the questions or issues that they offer to their students. One method is to use numeracy literacy abilities, which are critical skills for teachers and students to learn as part of higher-level thinking at the primary school level ³⁶.

In a study, it was explained that numeracy literacy in the unstructured solution states that students can analyze the information obtained from then use analytical

³¹ Carol Bedard, Leigh Van Horn, and Viola M. Garcia, "The Impact of Culture on Literacy," *The Educational Forum* 75, no. 3 (July 2011): 244–258.

³² Henry T. Trueba, "The Role of Culture in Literacy Acquisition: An Interdisciplinary Approach to Qualitative Research," *International Journal of Qualitative Studies in Education* 3, no. 1 (January 1990): 1–13.

³³ Cara Gormally, Peggy Brickman, and Mary Lutz, "Developing a Test of Scientific Literacy Skills (TOSLS): Measuring Undergraduates' Evaluation of Scientific Information and Arguments," ed. Elisa Stone, *CBE—Life Sciences Education* 11, no. 4 (December 2012): 364–377.

³⁴ Arnab Kundu, Tripti Bej, and Mary Rice, "Time to Engage: Implementing Math and Literacy Blended Learning Routines in an Indian Elementary Classroom," *Education and Information Technologies* 26, no. 1 (January 2021): 1201–1220.

³⁵ Yang Jiang et al., "Using Process Data to Understand Problem-Solving Strategies and Processes for Drag-and-Drop Items in a Large-Scale Mathematics Assessment," *Large-scale Assessments in Education* 9, no. 1 (December 2021): 2.

³⁶ Feiya Xiao et al., "Examining Problem-Solving Skills in Technology-Rich Environments as Related to Numeracy and Literacy," *International Journal of Lifelong Education* 38, no. 3 (May 2019): 327–338.

interpretations to predict and draw conclusions³⁷. Constraints experienced by students are the difficulty in understanding reading comprehension skills, difficulties in building settlement strategies, and difficulties in concluding. The key that the obstacle experienced when teaching numeracy literacy is that students have not been able to understand the problem because students are not accustomed to solving literacy-based problems³⁸. It is stated that the obstacle to implementing numeracy literacy is the lack of student's understanding of basic mathematics and innovation of learning materials by teachers^{39,40}.

Thus, the expectations and goals of the importance of teaching literacy and numeracy, namely having the ability to think, such as the ability to think logically, analytically, systematically, critically, reflectively and creatively can be achieved. This indicates that literacy and numeracy can be used as a medium to develop students' numeracy literacy skills. Therefore, teachers must be creative in connecting the concept of numeracy literacy with other literacies. Teachers are also required to be able to read, sort and bring material into an appropriate application form. If this can be applied properly, of course the basic numeracy competency scores will be maximized, students will have good numeracy skills and understand the concepts and applications of mathematics in other subjects and in everyday life.

Conclusion

The solution needed by partners is training and mentoring to design learning by integrating literacy and numeracy. Based on the implementation of training and mentoring for MINU KH Mukmin Sidoarjo teachers, it can be concluded that after participating in training and mentoring activities, teachers have been able to analyze and design learning by integrating literacy and numeracy. Based on the results of a reflection questionnaire from the training that has been held, 100% of teachers stated that they felt they had gained new knowledge about the preparation of lesson plans that integrate literacy and numeracy in elementary schools.

³⁷ Muhammad Rifqi Mahmud and Inne Marthyane Pratiwi, "Literasi Numerasi Siswa Dalam Pemecahan Masalah Tidak Terstruktur," *KALAMATIKA Jurnal Pendidikan Matematika* 4, no. 1 (April 30, 2019): 69–88, <http://kalamatika.matematika-uhamka.com/index.php/kmk/article/view/331>.

³⁸ Ryzal Perdana and Meidawati Suswandari, "Literasi Numerasi Dalam Pembelajaran Tematik Siswa Kelas Atas Sekolah Dasar," *Absis: Mathematics Education Journal* 3, no. 1 (March 20, 2021): 9, <http://journal.univetbantara.ac.id/index.php/absis/article/view/1385>.

³⁹ Fitraning Tyas Puji Pangesti, "MENUMBUHKEMBANGKAN LITERASI NUMERASI PADA PEMBELAJARAN MATEMATIKA DENGAN SOAL HOTS," *Indonesian Digital Journal of Mathematics and Education* 5, no. 9 (2018).

⁴⁰ Dyah Worowirastrri Ekowati et al., "Literasi Numerasi Di SD Muhammadiyah," *ELSE (Elementary School Education Journal) : Jurnal Pendidikan dan Pembelajaran Sekolah Dasar* 3, no. 1 (February 2019): 93.

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