

The 21st Century Skills through Literacy and Numeracy at Public Junior High Schools in Pamekasan Madura

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Abstract

The skills to think critically, think creatively, communicate effectively and work collaboratively are global demand in education in the 21st century. These abilities need to be developed in the classroom through literacy and numeracy to improve students' interpretation of the text read and relate it to their experiences. Literacy and numeracy become the main component in Minimum Competence Assessment (AKM) activities which are part of the National Assessment (AN). This paper aims to describe the implementation of literacy and numeracy in the learning process at public junior high schools in Pamekasan. This research uses a qualitative approach by a case study method. The results are, first, the teachers have already joined several workshops on literacy and numeracy, both conducted in school and outside of school. Second, the teachers have implemented them in their lesson plans, namely the objectives, learning activities, and assessments. Third, most of the teachers have been able to implement literacy and numeracy contents in the learning process, but there are still some who have difficulty in implementing the content of numeracy. It is suggested that the teachers need to do cross-subject numeracy by playing an active role to identify opportunities to strengthen it and to collaborate with other teachers on numeracy in the curriculum by instilling it in the subjects they teach without losing focus on their own subject.

Keywords: 21st Century, Literacy, Numeracy

Introduction

The development of science and technology in the 21st century has changed the characteristics of students so that they require orientation and innovative ways of learning. The adjustment of the teacher's role needs to be done mainly because of the change in the characteristics of the millennial generation of students into the characteristics of generation Z, a term representing the 21st century generation. The changes in 21st century learning include changes in learning patterns, changes in needs orientation, and changes in the learning habits of students.

The ability to think creatively, think creatively, communicate effectively and work collaboratively are global demands in education. These skills need to be developed in the classroom through strategies to improve students' skills in interpreting the text they read and to relate the text to experience, other texts they have read, and the problems of the world around them. Those skill strategies are literacy and numeracy.

Literacy is a person's ability to process and understand information while doing the reading and writing process. In its development, the definition of literacy always evolves according to the challenges of the times. In a broader sense, literacy is a person's language ability (listening, speaking, reading, and writing) to communicate in different ways according to their goals (Sari & Pujiono, 2016). Numeracy, also known as numeracy literacy and mathematical literacy, is the ability to apply mathematical concepts and skills to solve practical problems in various contexts of everyday life. It also includes the ability to analyze and interpret quantitative information that is around us which is displayed in various forms of graphs, tables, charts, etc. then interpret the results of the analysis to predict and make decision (Kementerian Pendidikan dan Kebudayaan, 2017). Numeracy is the key for students to access and understand the world and equip students with

awareness and understanding of the important role of mathematics in the modern world.

Literacy and numeracy are inseparable parts. Both of them play an important role in determining the quality of a nation because they are beneficial for improving it in the current era of technological development (Darwanto, 2020). Therefore, literacy and numeracy are defined as a person's ability to use reasoning. It means analyzing and understanding a statement through activities in manipulating symbols or mathematical language found in everyday life, and expressing the statement in writing or speaking.

Literacy and numeracy become the main component in Minimum Competence Assessment (AKM) activities which are part of the National Assessment (AN) as a substitute for the National Examination starting in 2021 and carried out by education units at the Elementary, Junior, High Schools and equivalent levels. Assessment is an activity to reveal the quality of the learning process and outcomes (Resti et al., 2020). It is different from evaluation. Evaluation is only oriented to value-related cognitive abilities. Therefore, it can be said that the assessment is the implementation of the use of assessment tools to obtain as much information as possible about the success of students in mastering certain competencies. AKM is an assessment of the basic competencies needed by all students in order to develop their own abilities and play an active role in society on activities that have positive values (Kementerian Pendidikan dan Kebudayaan, 2020).

AKM is an essential form of evaluation for Indonesian education in facing the development of science, the flow of world information and communication in the 21st century (Kadek et al., 2022). It is used to measure students' cognitive abilities in which the aspects measured are literacy and numeracy (Novita et al., 2021). AKM is designed to encourage the implementation of innovative learning that is oriented towards developing reasoning abilities, not focusing on memorization.

The results of the AKM are expected to provide information about the literacy and numeracy skills map of students so that teachers can carry out reinforcement to develop their reasoning abilities. Therefore, the implementation of this competency assessment makes teachers have to be more creative in preparing assessment instruments for students (Nehru, 2019). Teachers are required to teach with creative and innovative learning models

in accordance with the conditions needed. The implementation of the competency assessment has a student centered learning (SCL) approach (Nehru, 2019). SCL is a student-centered learning approach in which the teacher only acts as a facilitator. By increasing the role of students in the learning process, it will be easier to master literacy numeracy which is one of the AKM targets.

The focus of this research is first, how public junior high school teachers in Pamekasan plan their teaching learning process using literacy and numeracy. Second, how it is implemented in the classroom and third, what the obstacles faced by the teachers in implementing literacy and numeracy.

Methods

This research used a qualitative descriptive approach by case study method. It provides descriptive accounts targeted to understanding a phenomenon, a process, or a particular point of view from the perspective of those involved. It means that the process was done through analysis and description without manipulating the teaching learning process. Case study research focuses attention on one particular object that is raised as a case to be studied in depth. It emphasizes the depth of understanding of the problem under study. Data collected from observation, interview, and documentation. The observation was used to obtain information about the implementation of literacy and numeration in the classroom. Some teachers of public Junior High School in Pamekasan were interviewed to get information how they implement literacy and numeration skills in their classes. The documentation was used to get information about their lesson plan. Technical analysis of the data using Miles and

Huberman which is of the view that activities in qualitative data analysis are carried out interactively and takeplace continuously until they are completed through the stages of data analysis in the form of data condensastion, data display, and conclusion drawing or verifying conclusion (Miles, 2019).

Results

1. The preparation for the implementation of literacy and numeracy strengtening program .

- a) Before carrying out learning with literacy and numeracy content, the teachers attend some workshops both in schools and workshops independently, namely outside schools which are held by the education & culture office trough offline and online.

The following are the results of interviews with several public junior high school teachers

"I understand learning that strengthens literacy numeracy from workshops held at school and outside of school independently." (MD, 2022)

"The principal held a socialization about the implementation of AKM to all teachers then we attended workshops held at school and outside school."(SN, 2022)

"At first there was a teacher representative assigned by the Education and Culture Office to attend a workshop in Surabaya then he presented his knowledge to teachers about learning inspiration that strengthens literacy and numeracy" (RS, 2022)

- b) Making lesson plan (RPP) together

In order to obtain a common understanding of learning that strengthens literacy and numeracy so the teachers had forum group discussion with the same subject teachers (MGMP) for junior high schools in Pamekasan, they jointly make a lesson plan containing literacy and numeracy, as the following interview results

“ I always prepare lesson plan consisting literacy and numeracy skills.” (TR, 2022)

“Before teaching, I prepared lesson plans resulting from discussions from MGMP which contained learning steps that strengthen literacy, but because I teach English, sometimes numeracy skills are so difficult if it is not suitable with the topic taught.” (SA, 2022)

- c) Assessment (it must contain numeracy and literacy content)

Strengthening literacy and numeracy is also implemented in assessment activities, especially assessments in the form of written tests. In compiling the question grid, the teacher must provide about 20% of the tests which implement literacy and numeracy in the form of instruments such as the AKM questions. In addition to strengthening students' literacy and numeracy skills, this provision also aims to make students familiar with the AKM question models.

The forms of the AKM questions are in the form of multiple choice, matchmaking, essays or descriptions, complex multiple choice and short answers or entries.

2. Implementation of literacy and numeracy strengthening program

The implementation of the literacy and numeracy strengthening program in public junior high schools in Pamekasan has been implemented in learning activities based on the lesson plans that have been prepared by the teachers.

The following are several strategies are implemented in order to strengthen literacy in RPP:

- a) In the objective component, literacy strengthening is carried out by activities using discourse/text. The text used is in the form of informational text to provide facts, data, and information in the context of developing scientific insight and scientific knowledge and fiction text which aims to provide the experience of getting entertainment, enjoying stories, and doing contemplation for the readers.

- b) On the component of teaching materials, literacy strengthening activities are carried out by diversifying teaching materials (according to the characteristics of students, schools, and regions), more varied, based on content (information or fiction), based on context (personal, socio-cultural, or scientific), and utilizing multimoda (written text, story illustrations, posters, infographics, videos, etc.).
- c) At the stage of early learning activities (before learning), literacy strengthening can be done by identifying goals and making predictions.
- d) For core learning activities, literacy strengthening activities that can be carried out include identifying relevant information, make inferences (temporary conclusions based on information implied in the text); make questions about the content of the text and matters related to the topic (can use sources outside the text or enrichment books); and make linkages between texts.
- e) At the end of the learning activity, literacy strengthening is carried out by making "summary" activities (summarizing the content, identifying the main ideas, retelling, synthesizing, asking questions about the content, and so on)
- f) For assessment activities, assessment is used to measure the achievement of students' cognitive processes. The assessment instrument uses various forms by paying attention to the quality of the stimulus, the statement of the question (stem), and the answer choices that refer to the content and context of literacy, in addition to measuring the cognitive process of literacy.

3. Results of the implementation of literacy and numeracy strengthening program

Some teachers stated that they have difficulty in applying literacy and numeracy skills in their teaching learning process. For example, in social science subjects such as Indonesian, English, Social Studies, Cultural Arts and Religion, they have difficulty in applying numeracy but in literacy skills they have no difficulty. While in mathematics and science subjects, they do not have difficulties in both literacy and numeracy skills

Discussion

Literacy and numeracy skills are essential in the 21st century because they are in accordance with global demands in education, namely critical thinking skills, creativity, effective communication skills and collaborative work (Dewayani, 2021). Teachers are expected to be able to improve the literacy and numeracy skills of students through various reading strategies and interpreting the texts read and to relate these texts to experience. Each class has a different way and strategy in implementing the numeracy literacy program. each teacher is required to have the skills and innovation independently so that the program can run optimally. This is in accordance with strengthening the capacity of facilitators in the teacher education aspect (Han et al, 2017). Furthermore, the teacher is the first basic capital that must exist in realizing a literacy school (Abidin, 2018). The efforts made by teachers at public junior high schools in Pamekasan have supported the implementation of literacy and numeracy programs referring to the goals of the school literacy movement (Dirjen Pendidikan Dasar dan Menengah, 2016) which is to foster a culture of literacy and numeracy by developing their own innovations teachers in providing understanding related to the basic concepts of Mathematics, increasing capacity in maintaining cooperative relationships with external parties, to facilitate media and teaching materials needed in learning.

At the stage of early learning activities (before learning), literacy strengthening can be done by identifying goals and making predictions. This is in line with one of the various strategies for thinking about texts, namely students doing in-depth understanding by making inferences and predictions of reading material, understanding the meaning of key words, connecting ideas scattered in reading, critiquing viewswriter, and sometimes judge the author's purpose in writing the passage (Dewayani et al., 2021)

At the implementation stage of the literacy numeracy strengthening program at public junior high schools in Pamekasan, it has been implemented in learning activities based on the

lesson plans that have been prepared by the teachers with several strategies in accordance with literacy indicators to strengthen learning steps develop character, and hone competencies that are intertwined with literacy and numeracy strategies in learning adapted to the material presented (Dewayani et al., 2021) (Laksono, 2018).

In strengthening numeracy, non-science and mathematics teachers such as social science subjects: Indonesian, English, Social Studies, Cultural Arts and Religion, they have difficulty applying numeracy. The approach needed is cross-subject numeracy, namely the active role of the subject teacher to identify opportunities to strengthen numeracy in the subjects they teach and to collaborate with other teachers on numeracy in the curriculum by instilling numeracy in the subjects they teach without losing focus on the subject (Susanto, 2021)

Conclusion

1. In preparation for the implementation of literacy and numeracy strengthening program, the teachers attended workshops both at school and outside of school, prepare lesson plans together with the same subject teachers, and implement assessment activities in the form of written tests. The teacher provided about 20% of the tests which implement literacy and numeracy in the form of instruments such as the AKM questions.
2. In the implementation of the literacy and numeracy strengthening program, learning activities have been carried out based on the lesson plans that has been prepared with several strategies in accordance with those determined by the government or department of education and culture.
3. Most of the teachers have been able to implement literacy and numeration content in the learning process, but there are still some who have difficulty in implementing those contents. Therefore, the teachers needs to do cross-subject numeracy by playing an active role to identify opportunities to strengthen numeracy in the subjects they teach and to collaborate with other teachers on numeracy in the curriculum by instilling numeracy in the subjects they teach without losing focus on the subject.

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