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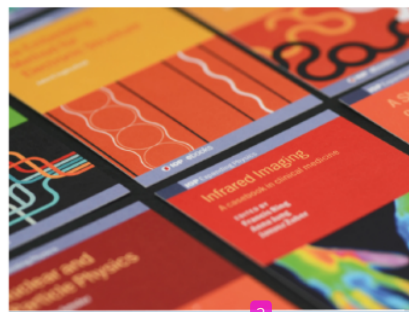
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Improving The Quality of Mathematics Learning Based On Society's Potency in Junior High School

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Abstract. The objectives of this study were to describe the society's empowerment in improving the quality of the learning media, learning process, and learning assessment in school. This research applied qualitative with ethnography research design. The data were collected by in-depth interview, observation, and documentation; while the data analysis technique used was the interactive analysis. The results of the study showed the following conclusions. (1) In order to gain good quality learning, it is a must to prepare a good learning media. The minimum component in developing the learning media (syllabus and lesson plan) must content the learning objectives, learning material, study source, and learning assessment. (2) The learning process must use various ways to encourage students' interest and curiosity, including using various methods, using language styles that are not monotonous, asking questions that guide students' creativity, using multi-method and multimedia, and giving assignments individually and in groups to students. (3) The assessment becomes a very important thing to determine the level of success in the learning that has been done.

1. Introduction

Education becomes one of the important sectors in national development. The aim of education, based on Pancasila, is to improve the quality of Indonesian human resources into individuals who devote to God Almighty, having a virtuous character, good personality, hard work ethic, and toughness, who are responsible, independent, intelligent, skilled, and physically and mentally healthy. National education is also expected to be able to grow and deepen the love of the country, strengthen the spirit of nationality and the sense of social solidarity [1], [2]. In line with this, it is necessary to develop a learning situation that can grow the self-confidence and innovative and creative attitudes. National education will be able to create a human being who can develop themselves and jointly responsible for their country's development. Therefore, the aim of national education contains many practical life values [3].

The society's participation in education is needed. The support from the society is not only in the financial form, but also the parents who are expected to be able to participate in developing the programs that can improve the quality of the school's education. The society is expected not only to send their children to school but also to participate in the supervision as well as to act as a controller in the



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implementation of the school's programs. This is done as a form of children's assistance in improving their behavior order [4]. Therefore, the education goals will be more easily achieved.

Schools must be able to bridge the community to be able to work together in advancing education. One way that can be done is to make changes to the education system, especially those related to the educational management implementation, to make it more precise and effective. Various efforts have been made to improve the quality of education, including training and enhancing teacher's competency, procuring books and learning tools, and improving educational facilities and infrastructure. These efforts finally encourage the increase of the number of students in every year. However, the increase in the number of students receiving formal education was not followed by the proper educational outcomes [5]. Even though the quantity is increasing, the quality of education has not yet reached the goal of national education.

Education is a process that involves an interaction between various aspects. This interaction occurs because of different characteristics from one place to another which causes the educational process to run differently between those places. These differences increase considering the condition of Indonesia which is an archipelago and has different physical conditions in each region. This is why the educational process in every place will not run optimally. The government needs to carry out several strategies to improve the quality of education in Indonesia.

One of the government's strategies in improving the quality of Indonesia's human resources is through improving the quality of education in line with the development of the 21st century, which is known as the era of globalization. Indonesia faces three serious problems in education. First, the terrible moral crisis in society. Second, the inadequate learning system in schools. Third, the low quality of education especially at the primary and secondary education levels [6]. The number of problems in the field of education ultimately encourages the need for rationalization or common sense in solving problems in social life [5]. One of the lessons that often has problems is the learning of mathematics.

Among the problems that occur in mathematics learning is that there is no integration of local character and local potential in the learning process. In addition, the existing textbooks have not yet connected the students' character [7]. Many students declared that the mathematics learning process is formal [8] and often has less variation in the provision of its material [9]–[11]. The number of problems in the learning of mathematics eventually causes many students to feel that mathematics is a difficult lesson and is not related to their daily life [9], [12], [13]. The concept of learning mathematics often only focuses to formulas so it belongs to an abstract learning [14]. These problems ultimately cause the mathematics learning process to be considered less than optimal [15].

Problems in mathematics learning exist because of the lack of connecting mathematical concepts to the real problems in everyday life [16], [17]. These problems finally encourage students to have low learning motivation and difficulty in understanding complex mathematical materials [12], [13]. The mathematical materials delivered by the teacher should be adjusted to existing needs and objectives of the learning [7], [18], especially those that assist the science and technology development. Therefore, teachers need to integrate mathematics learning material that will be explained with the support of technology [19]. Mathematics teachers must be able to integrate technology in learning that adapted to cultural conditions in an area in order to get the optimal learning outcomes. This integration can proceed well if there is a change in the mathematics learning approach that pays more attention to cultural conditions.

Learning mathematics is a form of learning the human culture result as a result of designing, calculating, and implementing material in solving everyday problems [10]. Mathematics learning has a very close relationship with the character of the nation's culture, particularly in terms of consistency and compliance with principles [7]. Therefore, the relationship between real-life contexts in the mathematics learning process is very close [8], [20], [21]. This can be seen through the proof in the process of learning mathematics which never contradicts the concepts. A mathematics learning approach that pays attention to the cultural conditions is called ethnomathematics learning.

Ethnomathematics learning is a learning process that links mathematics learning with cultural elements that exist in the society and students' daily experiences [9], [11], [20], [22]–[24].

Ethnomathematics learning is one of the alternative learnings which is fun and innovative and is able to promote the national literacy movement [25]. Ethnomathematics is by constructivism theory [19], so the students can increase their understanding and knowledge according to the experiences they have. Ethnomathematics learning is also following the principles of realistic mathematics [26], [27]. The existence of conformity with constructivism theory and the principle of realistic mathematics supports the ethnomathematics learning in line with the 2013 curriculum, which is currently being used in the learning process [25].

The purpose of ethnomathematics learning is to encourage students to be more creative in responding to problems, able to communicate ideas, generate curiosity, be able to cooperate with clear role assignments and gain knowledge about social and cultural values that exist in the society [20]. Ethnomathematics learning is also able to stimulate students' intellectual, social, emotional, and political activities [22]. The existence of ethnomathematics learning can support multicultural mathematics learning [19]. This is in line with the research [28] which stated that students who implemented ethnomathematics had better understanding than those who did not use it.

Teachers need to foster students' knowledge by integrating culture and students' experiences in the learning process [23]. This integration encourages students to be fearless and become very enthusiastic about the natural conditions around them [28]. Based on this description, this article attempts to focus on society's empowerment in dealing with mathematics learning problems in the following aspects: 1) the quality of learning media in schools, 2) the quality of the learning process in schools, and 3) the quality of learning assessment in schools.

2.3 Research Methods

This research utilized descriptive qualitative research. The use of qualitative research was because this research described the complexity of the problems to be studied [29], particularly, those in learning mathematics. This is in accordance with the opinions [30]–[32] which stated that qualitative research is research that describes an event or problem using words, rather than using numbers/statistics. The use of the words requires careful analysis in order to develop the appropriate concepts and variables.

The approach used in this research was ethnography. The ethnographic approach encourages researchers to observe and analyze the behavior patterns of a group directly using the data of observation and interview [29], [32]. Therefore, the data collection techniques used in this study were observations and interviews with a mathematics teacher at Junior High School of Muhammadiyah Darul Arqom Karanganyar. The sample selection was carried out because the school had implemented a strategy of involving parents in the learning process, it was in accordance with the research topic. The data analysis used was the interactive analysis of Miles and Huberman, with three activities, namely: data reduction, data display, and conclusion/data verification [32]. To be able to fulfill these three activities, the researcher tried to pay attention to the management of places, events, respondents, and also the process during the data collection activities.

3. Results and Discussion

Based on data description on Society's Empowerment in Improving the Quality of Learning at Junior High School of Muhammadiyah Darul Arqom, there are several findings as follows.

3.1. Society's empowerment in improving the quality of the learning media in school

Teachers, as educators, must have certain qualifications. They must have academic qualifications, competencies, teacher's certificate, be physically and mentally healthy, and have the ability to realize the goals of national education [33]. Teachers must have several competencies, including pedagogical competency, personal competency, social competency, and professional competency that obtained through professional education [33], [34]. Related to the teacher's workload in learning, there are four capabilities. These four capabilities are planning the learning activities, managing the learning activities, assessing the learning activities, and mastering the learning

materials. All of these are a unified task that is always carried out by the teachers which as a whole will be seen in the implementation of the task, hereinafter referred to teachers' performance. Learning is a way to achieve a goal, namely creating scenarios for learning both inside and outside the classroom.

In order to carry out the learning tasks properly, careful planning is essential to every activity. Without careful planning, we cannot expect it will run smoothly and achieve the goals. Not all planning must be written, it could be only in someone's mind. Planning is a preparation or scenario that is required before the implementation of learning or physical activities is carried out.

The syllabus is basically a long-term learning plan for one and/or group of particular subjects that includes competency standards, basic competency, main material/learning, learning activities, indicators, assessments, time allocation, and learning resources/materials/media [35]. The syllabus as a learning plan is needed because the learning process in schools is carried out within a predetermined time. In addition, the learning process itself is essentially a process that is structured and arranged in such a way based on certain steps. So in its implementation, it can achieve the expected results and the basic competencies can be achieved effectively.

The 2013 curriculum states that the learning plan contains at least: (1) learning objectives, (2) learning materials, (3) learning methods, (4) learning resources, and (5) assessment. Meanwhile, according to the Regulation of the Minister of Education and Culture (Permendikbud) Number 103 of 2014 concerning Learning in Primary and Secondary Education, the learning plan contains at least: (1) school/madrasah identity, subject or theme, class/semester, and time allocation; (2) core competency, basic competency, and competency achievement indicators; (3) learning materials; (4) learning activities which include preliminary activities, core activities, and final activities; (5) assessment, remedial and enrichment; and (6) media, tools, materials, and learning resources.

The steps in developing a learning plan include: 1) filling the identity of the subject, which consists of: (a) education unit, (b) subject, (c) class/semester, and (d) lesson hour; 2) giving the time allocation required for the meeting that has been determined; 3) establishing core competency, basic competency and indicators of the achievement of competency specified in the syllabus that has been developed; 4) formulating learning objectives based on the core competency, basic competency and indicators of the achievement of predetermined competency; 5) determine the teaching material based on the main/learning material contained in the syllabus; 6) determine the learning method that will be used; 7) developing steps for learning activities consisting the initial, core, and final activities; 8) selecting and determining the use of the learning media/material; and 9) determine the type of assessment and assessment instruments.

The steps for these ethnomathematics-based mathematics learning activity needs to be developed in detail where each step includes the activities of the teacher, students, and the allocation of time needed. Initial activities in a lesson are commonly carried out by teachers but have no direct relationship with learning materials, such as saying greetings, asking how students are, and checking students' attendance. According to the researcher, the details of this activity may or may not be included in the initial activity steps. Initial activities can also have a direct relationship with the teaching materials, namely doing apperception (reminding and linking teaching materials that have been previously presented).

Core activities are the main activities that require more time than the other two activities (initial and final activities). The core activity is the development of detailed activities that will be carried out by teachers and students [5]. In addition, this activity also describes students' interactions, including the interaction between students, students with teachers, students with learning resources, and students with the environment. In developing the core activities, teachers need to pay attention to the formulation of learning activities that have been developed in the syllabus.

After the core activities, the teachers need to pay attention to final activities. The final activity is an activity that can contain details of activities including determining material outlines/drawing conclusions, providing feedback and reflection and providing moral messages to students. The final

activity will also be related to evaluations/tests/assignments to students by paying attention to the indicators of competency achievement and predetermined learning objectives.

3.2. *Society's empowerment in improving the quality of the learning process in school*

Improving the quality of the learning is necessary to create independent and creative students in the future. Learning creativity determines the quality of student learning outcomes. The quality of learning will reflect the results of the efforts of educators and other components who care about the education. Based on motivation and the factors that influence learning, the teachers have to make every effort to develop their creativity, so the learning quality can be achieved. Before starting a learning activity, teachers need to pay attention to learning requirements including environmental, physical and mental [4], [33]–[35]. These three requirements affect the quality of student learning. In their endeavor, teachers should try to create a pleasant learning conditions for students. It needs to be done in order to make students psychologically hooked and the students will automatically follow the direction of learning and learning goals desired by the teacher. Teachers' creativity is needed in order to make the learning process goes according to plan.

When providing learning materials, the teacher needs to pay attention to the provision of material so it fits the plan and does not exceed what has been planned. Students will often find it difficult to do assignments and fear the teacher if the teacher is too formal in providing the material, therefore, it is necessary to use multimedia in the learning process. The existence of teaching media can encourage students to take an active role physically and mentally in the learning process [36]. This will be more effective and efficient in encouraging the achievement of higher quality in learning outcomes. In addition to the use of media, it is also important to the teachers to strengthen students' self-confidence, so the students have the desire to study even harder.

The improvement of the quality of the learning process can also be determined by the readiness of the teachers in carrying out learning activities. [33] stated that the quality of students in the learning process requires a long journey from a teacher. The strong, persistent, and unyielding teachers in the learning development is needed if they want to produce good quality graduates. Teachers' preparation can be realized by making lesson plans. The existence of the learning plan can improve psychological and physical preparation to encourage an increase in the quality of learning. The implementation of learning must also use various ways to encourage students' interest and curiosity, including using various methods, using language styles that are not monotonous, asking questions that guide students' creativity, using multimethod and multimedia, and giving assignments individually and in groups to students.

Teachers must always have the belief that students are an educated group regarding to information and knowledge, so the teachers need to provide material that is accurate and proportional to their development (both physically and mentally). The readiness of the teachers in providing the complete material with creativity will make students successful in continuing their study. The application of knowledge with the right strategy in its delivery will be firmly attached to the students and create a positive impression during the learning process.

3.3. *Society's empowerment in improving the quality of the learning process in school*

In education world, the assessment must be carried out in the learning process. The assessment is carried out to determine the ability of students to meet educational assessment standards that are used as a guidelines in determining students' graduation. Learning assessment often experiences several problems, especially the assessment that occur between teachers and students. Teachers have difficulty in determining Minimum Completeness Criteria (KKM), formulating the criteria for grade promotion, and passing criteria for students. In addition, teachers have difficulty in determining score of remedial results related to KKM.

Another problem that often occurs to teachers in the learning process is that teachers do not provide national examination question sheets. The national examination is one type of assessment conducted by the national government to measure student learning success in several years, and its

presence has become a debate and controversy in the community. According to [37], [38], the development of the national examination is often used for interests outside the education system, such as the political interests of education policyholders or the economic interests of a few people. Therefore, it is not surprising that in its implementation there are many gaffes, such as cases of leaking questions, cheating, fabricating students' work results and other forms of cheating. This makes the problems in the learning assessment even bigger. The assessment of examination results often cannot show the ability or competency of each student. Therefore, society's participation is also very necessary as a control tool in implementing the learning assessments, especially in national examination.

4. Conclusion

To obtain a good quality of learning, good learning tools must also be prepared. The minimum components in developing learning tools (syllabus and lesson plan) consist of: (1) learning objectives, (2) teaching materials, (3) teaching methods, (4) learning resources, and (5) assessment of learning outcomes. Teachers must always make every effort to develop their activities in order to achieve a good quality learning. To achieve good quality learning, there are three prerequisites that need to be considered: environmental, physical, and mental. The improvement of the quality of the learning process is also determined by the readiness of the teachers in carrying out learning activities. The strong, persistent, and unyielding teachers in the learning development is needed if they want to produce good quality graduates. The implementation of learning must also use various ways to encourage students' interest and curiosity, including a) using various methods, b) using language styles that are not monotonous, c) asking questions that guide students' creativity, d) using multimethod and multimedia, and e) giving assignments individually and in groups to students. The assessment becomes a very important thing to determine the level of success in the learning that has been done. The assessments can be carried out by teachers, schools, and the government. Good learning assessment must be balanced with society's participation in controlling the implementation of the learning process, so the learning objectives can be achieved.

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