



Explorations of The Implementation of Mathematic Curriculum Based on Teacher's Style Instructions

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Abstract

This quantitative research explores the mathematics curriculum implementation based on teachers' instruction styles. Data were collected through observation and documentation techniques. Data analysis using quantitative descriptive. The research subjects were 2 mathematics teachers in grade VII of SMPN 33 Makassar. Subject ARF with technological and HSR with classical teaching styles. The study results show that the lesson plan of ARF and HSR were very good categories (93.63%) because they planned together when joining the mathematics curriculum training. The learning implementation of ARF was a good category based on the indicators of lesson material (79.16%), delivering material (77.08%), the role of students (78.6%), and the role of the teacher (80.5%). Meanwhile, HSR was in enough categories based on the indicators of lesson material (72.91%), delivering material (65.97%), the role of students with 60.3%, and the role of the teacher (61.45%). Both teachers have differences because influenced by different teaching styles, so in this phase, teachers urgently need to have and determine the teaching style so that the curriculum can be implemented as planned. ARF and HSR learning assessments were in excellent categories, obtaining 95.45% for each. At this stage, the teaching style does not affect the learning assessments in the class.

Keywords: Exploration; Mathematics curriculum; Teaching style.

1. Introduction

Every country has a curriculum that is part of elaborating government policies in the education sector. Change and curriculum development is an absolute things to do by the government. In Indonesia, there have been many changes to the curriculum, so change and curriculum development can improve the quality of education. This change certainly influences the teacher as the main implementer of the curriculum in schools. So it is expected that teachers must play an active role in curriculum changes, understand curriculum content, develop lesson plans and apply them in their classrooms (Lloyd et al., 2017),(Cai & Hwang, 2021),(Rezai et al., 2021). Because they are the main implementers of the curriculum, of course, they must be able to adapt to any changes in the curriculum

The curriculum is defined as a set of tools to achieve a goal, from planning and implementation up to evaluation (Supriani et al., 2022); the curriculum is also defined as a learning planning document that will be used when teaching in class (Voigt et al., 2020). Meanwhile, according to Harold B. Alberty et al. defined, the curriculum as all activities carried out by students at school (Nurdin, 2005). The definition shows that the curriculum is any activity that the teacher carries out in the classroom based on the teacher's learning plan in influencing children to learn to achieve a goal, including teaching and learning activities, setting strategies in the teaching and learning process, how to evaluate teaching development programs, etc. Of course, in terms of implementation, it is very varied and strongly influenced by teacher competence in mastering the material, teaching style, and skills in using and utilizing learning resources which are important in efforts to improve the quality of learning in schools.

The mathematics curriculum in schools is a derivative of the national curriculum, so that this elaboration can achieve national education goals. Because the main function of a mathematics teacher related to learning activities is to plan, implement, and evaluate learning.

1.1. Stage of Learning Planning

For the implementation and evaluation of learning to run smoothly and effectively to achieve the learning goals that have been set, the teacher, as a learning manager, needs to compile a learning plan. Learning planning is a reference for teachers to carry out learning activities to be more targeted and run effectively and efficiently (Ananda & Amiruddin, 2019),(Simanjuntak, 2022). The planning process is a planned activity that is systematically arranged, easy to apply, but still flexible and accountable (Abidin, 2014) so that students can learn and achieve the expected competencies. With this definition, the teacher must prepare a lesson plan. This learning plan will be used as a guiding tool for teachers in carrying out the teaching and learning process in the classroom so that competence and learning objectives can be achieved.

1.2. Stage of Learning Implementation

The implementation stage of learning is applying the planning design the teacher has made. The implementation of learning is the implementation of the teaching and learning process as a core element of learning activities, which are adjusted to the signs that have been prepared in the previous planning (Rizki & Yuwono, 2021). In the implementation of teacher learning, it is required to be active in creating and growing student learning activities according to the plan that has been made.

Teachers must be able to make the right decisions about learning activities, be stopped, change their methods, repeat past lessons, or other actions when learners have yet to be able to achieve learning goals. At this stage, in addition to theoretical knowledge about learning, learning also requires the ability to choose and use techniques or learning methods, tools, strategies, and approaches and assess students' learning outcomes (Nana, 2004). In addition, teachers in the learning process must have teaching styles and skills to carry out variations in teaching styles so that learning is not boring and learning goals can be achieved (Lestari et al., 2017),(Susanti & Janattaka, 2020).

1.3. Stage of Learning Assessment

Learning evaluation is an integral part of education. Because learning evaluation is a process of determining the achievement of educational and learning goals, it is necessary to make efforts or evaluation actions. Evaluation is considering price or value based on certain criteria. Evaluation is a continuous process, not only at the end of the teaching but also before the implementation until the end of teaching (Hamalik, 2003). The learning evaluation is intended to see how the students' learning progress has been achieved in the educational programs it has implemented.

Teachers carry out assessments on learning outcomes to measure the level of achievement of learners' competencies, as well as use them as material for preparing reports on the progress of learning outcomes and improving the learning process. Assessments are carried out consistently and programmatically using tests and non-tests in written or oral form, performance observation, attitude confirmation, evaluation of work results in the form of tasks, projects, or products, portfolios, and self-assessment.

In essence, school learning is the actualization of the curriculum that requires the activeness of teachers in creating and growing student activities in accordance with the plan that has been programmed (Pambudi, 2014),(Valentino & Mutmainah, 2017),(Simanulang, 2014). In this regard, in the curriculum implementation process, teachers must have varied teaching styles so that students do not feel bored in the learning process(Nurjanah & Adman, 2018) because the characteristics of students vary in class.

According to Peacock, teaching style is how a person naturally teaches habits, tendencies, or even habits that are used to convey information and skills in the classroom (Peacock, 2001). The success of teaching and learning in terms of teachers can be seen from the teacher's determination and has engaging teaching style so that it can create an exciting, fun and exciting learning atmosphere, which in turn makes students easy and can understand the lessons given by the teacher (Khumaero & Arie, 2017). The teaching style is also influenced by the nature of the learner, teacher, situation, and curriculum content (McCollin, 2000).

Teachers' teaching styles can be distinguished into four styles: classic, technological, personalization, and interactional (Ali, 2004). The four teaching styles of the teacher will be explained, namely; 1) Classical teaching style is a teaching process with a classical style of trying to maintain and convey the values of the previous generation to the next generation. The content of the lesson is objective, clear and systematically organized. Learning is not based on the interests of the child. The role of the teacher is very dominant, and the learning process is passive; 2) The technological teaching style focuses on the learners' competence individually. The subject matter is adjusted to the child's level of readiness. The role of the content of the lesson is very dominant. The role of students here is to learn by using devices or media (*guide*), director (*director*), or *facilitator* (*facilitator*) learning because learning has been programmed in such a way in software (*software*) and hardware (*hardware*), 3) Personalization teaching style is personalization learning based on the interests, interests, experiences and mental development of learners. The dominance of learning is in the hands of students. The role of the teacher is to guide and help the development through the learning experience. Therefore, teachers must have nurturing skills, be experts in psychology and methodology, and act as resource persons (*resources person*). The subject matter is based on the interests and needs of students, 4) Interactional teaching style that the role of teachers and learners here is equally dominant. Teachers, in this case, create an interdependent climate and the emergence of dialogue between learners. Learners learn through dialogical relationships. The content of the lesson is focused on problems related to socio-culture, especially those of a contemporary nature. The four teaching styles of teachers mentioned above are strongly embraced in the implementation of learning as part of the curriculum implementation.

Based on the above presentation, this study focuses on indicators of teaching style, in Ali's opinion, because to examine the exploration of the implementation of the mathematics curriculum based on the teaching style of teachers of mathematics subjects which is expected to be known to the extent of the implementation of the mathematics curriculum based on the style of teaching teachers at SMPN 33 Makassar.

2. Method

This research uses descriptive quantitative research methods. The quantitative research method is based on positivism, which views a reality, symptom, or phenomenon as something that can be classified, concreted, observed, measured, relatively fixed, and has a cause-and-effect relationship (Sugiyono, 2014).

Data collection techniques using observation sheets and documentation using a Likert scale questionnaire instrument with a score range of 1 less to 4 very good. The data analysis technique used in this study is quantitative descriptive data analysis to process the information obtained by researchers in the form of observational data and documentation about implementing the mathematics curriculum in mathematics learning at SMPN 33 Makassar. In analyzing the data, each indicator value is recapitulated to get the total value or final value. The final value can be calculated using the following formula:

$$Final\ Score = \frac{Score\ Obtained}{Total\ Maximum\ Score} \times 100\% \quad (Purwanto, 2012)$$

The final value is obtained and then converted into a percentage scale as follows.

Table 1. Percentage of Final Score (Widoyoko, 2016)

Interval	Score	Ratings/Categories
$90 \leq A \leq 100$	4	Very Good
$75 \leq B < 90$	3	Good
$60 \leq C < 75$	2	Enough
< 60	1	Less

3. Result and Discussion

In this study, two mathematics teachers taught in class VII at SMPN 33 Makassar, namely the subject of ARF and HSR, were the subjects of the research, and both of these teacher subjects had attended curriculum training. And based on the results of early observations, both subjects have been identified based on Ali's teaching style, namely the ARF subject has a technological teaching style and the HSR subject has a classical teaching style.

The learning activities include the learning planning stage, the learning implementation stage, and the learning assessment stage. The results of the study of learning planning by ARF subjects and HSR subjects are as follows:

3.1. Learning Planning Data based on Mathematics Curriculum in Mathematics Learning at SMPN 33 Makassar

The results of observations in the preparation of mathematics learning planning by ARF and HSR teachers will be revealed as follows:

3.1.1. Design of RPP

In RPP made by ARF and HSR in the same form, the initial, core, and final activities are clear and complete. ARF and HSR have understood the format of RPP preparation and meet the criteria in accordance with the rubric of the mathematics curriculum implementation. However, ARF and HSR cannot apply some appropriately in RPP, namely, not listing learning models.

3.1.2. Learner Worksheet (LKPD)

In addition to RPP, LKPD also did not escape assessment. The LKPD that is assessed conforms with the recommended approach to the mathematics curriculum, namely the scientific approach. The similarity of LKPD is listed in the RPP by ARF and HSR teachers because the two teachers only use the same RPP, so the LKDP is the same.

Based on the overall assessment indicators for learning planning on the subject of ARF and HSR, the percentage of the final score is 93.63%. It was in the very good category, so it can be concluded that both teachers have the same results in the learning planning category carried out because when they follow the Mathematics curriculum, training activities are arranged in groups. When participating in MGMP, activities are refined together and then used as a reference in teaching because the class level is the same, namely class VII.

3.2. Learning Implementation Data based on Mathematics Curriculum at SMPN 33 Makassar

The results of the study of the implementation of learning in the ARF and HSR subjects based on the assessment indicators can be seen in the following table.

Table 2. Percentage of Learning Implementation

Subject	Learning Implementation Based on the Teaching Style of Teachers					Categories
	Teaching Style	Lesson Material	delivering material	the role of students	the role of the teacher	
ARF	Technological Teaching Style	79.16%	77.08%	78.6%	80.5%	Good
HSR	Classic Teaching Style	72.91%	65.97%	60.3%	61.45%	Enough

Based on Table above, the subject of ARF with a technological teaching style is based on indicators of lesson material with 79.16%, the process of delivering material with 77.08%, the role of students with 78.6%, and the role of the teacher with 80.5%, so it can be concluded that all assessment indicators are in a good category. The high percentage value is based on the teacher's teaching style that focuses on the competence of individual students, the lesson materials are adjusted to the readiness level of the students, the teacher acts as a facilitator, and the teacher also uses learning tools or media so that the learning process can run effectively and efficiently.

Meanwhile, the subject of HSR with classical teaching style is based on assessment indicators on lesson materials with 72.91%, the process of delivering material with 65.97%, the role of students with 60.3%, and the role of teachers with 61.45%, so it can be concluded that all assessment indicators are in the sufficient category. The low percentage value is because it is based on the teacher's teaching style, which is not based on students' learning interests, so the teacher is very dominant in the class, and the learning process is passive. In the learning process, students should have an active role and student-centered learning so that the learning process can run as expected.

At the stage of learning implementation, both teachers have different teaching styles, so there are differences in the results of the percentage of final scores. This difference is certainly strongly influenced by the teacher's teaching style, so at this stage, the teacher needs to have and determine the teaching style so that the classroom curriculum can be implemented as planned. This is in line with Safari's opinion that teaching style is an absolute requirement for the effectiveness of a teaching and learning process (Safari et al., 2014), and this teaching style is also a reflection of the teacher's personality in the teaching and learning process (Anwar et al., 2020). So that the success of implementing the mathematics curriculum is very dependent on the teaching style of the teacher in the classroom (Sumar & Razak, 2016)

3.3. Learning Assessment Data based on Mathematics Curriculum in Mathematics Learning at SMPN 33 Makassar

Based on the results of observations related to the mathematics learning assessment process carried out by teachers based on the mathematics curriculum at SMPN 33 Makassar in the aspect of competency assessment of attitudes, knowledge, and skills, the final score percentage on the subject of ARF and HSR was 95.45%, and it is categorized was very good. Both subjects have complete activities because the preparation process follows the curriculum and MGMP activities. Still, in practice, it is different from the rules contained in the lesson plans. The reason is that it is different from the instrument used because of the teacher's lack of understanding about the learning assessment process. Because at

the time of training, there was more training in the classroom, while in the aspect of the assessment process, it was not. In the aspect of teaching, the teacher does not affect learning in the classroom.

4. Conclusion

Mathematics learning planning by teachers based on the mathematics curriculum at SMPN 33 Makassar based on the teacher's teaching style for ARF teachers with a technological teaching style and HSR with a classical teaching style has the same final score percentage of 93.63%, and it is in the very good categories. The similarity of the results of the learning planning categories carried out by both teachers was due to the fact that when participating in the training, the mathematics curriculum was arranged in groups. When participating in the MGMP activities, they were refined together and then used as a basic reference in teaching because the class level was the same, namely class VII.

The implementation of mathematics learning by teachers is based on the mathematics curriculum at SMPN 33 Makassar on the subject of ARF based on indicators of lesson materials with 79.16%, the process of delivering material with 77.08%, the role of students with 78.6%, and the role of the teacher with 80.5%, so that it can be concluded that all assessment indicators are in a suitable category. While the subject of HSR with classical teaching style is based on assessment indicators on lesson materials with 72.91%, the process of delivering material with 65.97%, the role of students with 60.3%, and the role of teachers with 61.45%, so it can be concluded that all assessment indicators are in the sufficient category. Both teachers have differences; this difference is based on the teaching style of the teacher. The implementation stage of this learning is strongly influenced or highly dependent on the teaching style of the teacher in the classroom, so at this stage, the teacher needs to have and determine the teaching style so that the implementation of the classroom curriculum can be achieved as planned.

Teachers' assessment of mathematics learning planning based on the mathematics curriculum at SMPN 33 Makassar for ARF based on technological teaching style and HSR based on teaching style, each obtained a final score of 95.45% and was in the very good category. At this stage of learning assessment, the teacher's teaching style does not affect the assessment of learning in the class.

Based on the planning, implementation, and assessment of learning in the mathematics curriculum, the implication is that only the implementation of the mathematics curriculum is very dependent on the teaching style of the teacher in the classroom but does not affect the planning and assessment of learning in the classroom. So it is expected that teachers have and determine the ideal teaching style based on the characteristics of students in the class so that they can improve the quality of learning in schools. This research may be the basis for further research on teaching styles based on 21st-century skills.

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