

ANALYSIS OF WEAKNESSES OF THE MATHEMATICS LEARNING MANAGEMENT MODEL AT SMPN 3 NUMFOR BARAT BIAK NUMFOR DISTRICT PAPUA PROVINCE

Erwanto Guntoro^{*}, Albert Efendi Pohan, Alpino Susanto, Syafril Fadhillah
University of Riau Kepulauan, Indonesia
Corresponding Author: erwantoguntoro@yahoo.com.

Abstract

The importance of learning mathematics for students can be done by making full use of and giving students an understanding of the breadth and diversity of all sources of information that can be used as a resource for learning mathematics; increase learning motivation by actively learning mathematics; provide opportunities for students to learn mathematics at their own pace and abilities. be more flexible in using time and space to study mathematics and try to develop self-confidence. This research aims to analyze and investigate mathematical learning management models in the 3T area. This research was conducted at SMPN 3 Numfor Barat which is in the 3T area (Disadvantaged, Outermost, Frontier). To achieve the objectives of this research, the researcher applied qualitative research with a case study approach. This research data was collected through observation and in-depth interviews with 1 school principal and 1 subject teacher. Research data is processed through the stages of data collecting, data display, data reduction, and data conclusion. To ensure the validity of the research data, researchers carried out confirmability and credibility of the data by involving the Education Department for educational resource development and school supervisors. The research results show that: (1) the learning management model that has been implemented in the 3T area consists of planning, organizing, implementing and evaluating stages. (2) The function of the learning management model that has been implemented in the 3T area runs effectively and efficiently. The results of this research provide important information for the government, school supervisors, school principals and teachers to develop effective and efficient learning management models to increase student creativity and improve students' ability to solve problems.

Keywords: weakness analysis, management model, mathematics learning.

INTRODUCTION

Education is the backbone of a country. In this case, education is a container that determines the quality of human life by supporting the growth and development of the nation and state. SMPN 3 Numfor Barat in Pakreki Village, Orkeri District, Biak Numfor Regency, Papua Province. As one of the junior high schools in the 3T region (underdeveloped, frontier, and outermost), it has a strategic role in improving access and quality of education in the area (Ministry of Education, Culture, Research, and Technology, 2021). Nelson Mandela said that education is the most powerful weapon to change the world. Developed countries, such as South Korea and Japan, have already organized their citizens' education systems before building a progressive economy like today (Sakmurzaeva, 2018). The management concept outlined by Dezhbankhan et al. (2021) focuses on training and education management to improve competency through the management functions of planning, organizing, implementing, monitoring, and evaluating. One of the 21st century skills that is important for

students to master is the ability to solve mathematical problems. The ability to solve mathematical problems is very important because it is the basis for solving mathematical problems and problems in real life (Destania & Riwayati, 2021). In fact, the problem-solving abilities of students in Indonesia are still relatively low (Ulva et al., 2020).

To answer this big challenge, the STEAM learning concept or movement emerged. According to Starzinski (2017), STEAM is an integrated learning model of Science, Technika, Engineering, Arts and Mathematics as a forum for developing student investigation activities, communication skills and critical thinking in learning. One of the important skills that need to be developed is critical thinking skills which are the basis for students to face challenges in the future. These skills enable students to solve problems, make decisions correctly, and evaluate information logically and deeply. In the context of mathematics learning, critical thinking skills are very important, because a good understanding of concepts and analysis is the key to success. Innovative education must be able to provide students with critical thinking skills that are not only useful in mathematics, but also in various other disciplines (Innabi et al., 2007). According to Siri et al. (2020), a competent teacher is a teacher who has strong knowledge of the field of study being taught, has the right attitude towards themselves, school, peers, and the field of study being taught, has good skills in actual teaching techniques in implementing learning strategies and methods, and masters the educational technology used. The importance of learning mathematics for students can be achieved by making full use of it and providing students with an understanding of its breadth and diversity. all sources of information that can be used as a source for learning mathematics; increase learning motivation by actively learning mathematics; giving students the opportunity to learn mathematics at their own pace and ability. more flexible in the use of time and space for learning mathematics and try to develop self-confidence.

Mathematics education has a very important role in forming logical, analytical, and critical thinking skills for students. Therefore, the implementation of effective learning management is very necessary to achieve optimal learning objectives, especially at the Junior High School level. SMPN 3 Numfor Barat in Pakreki Village, Orkeri District, Biak Numfor Regency, Papua Province, the mathematics learning management model applied has its own challenges that need to be analyzed to find out the weaknesses. Good learning management is the main key to creating a conducive and effective learning atmosphere. However, in reality, various problems arise in the implementation of the mathematics learning management model at SMPN 3 Numfor Barat in Pakreki Village, Orkeri District, Biak Numfor Regency, Papua

Province, such as limited resources, differences in teacher competencies, and lack of use of technology in learning. This has an impact on the low quality of mathematics learning and student learning outcomes. The Mother of God (2020) STEAM is a learning approach that expands knowledge, science and humanities for students and develops 21st-century skills, in which students use science, technology, engineering, and mathematics in real contexts connecting school, the world of work, and the global world. The existence of STEAM is not only *modern education*, but also provides opportunities for children to develop their abilities in communicating their knowledge creatively (Anizal & Hartati, 2022).

However, the facts on the ground reveal that teacher understanding and implementation of STAEM are still ineffective. Shernoff et al. (2017) revealed the lack of STEAM learning provided to teachers and teachers also felt the lack of training on STEAM learning. Teachers feel that there is a lack of *ready-to-use media* that can be used to support learning (Rafiq et al., 2020). In addition, 59.50 % of teachers also experience challenges in accessing STEAM content. These challenges include administrative challenges, budget, and the availability of STEAM content in Indonesian. Previous studies have also revealed that the lack of resources such as facilities, budget (Park et al., 2016) and access to content (Shernoff et al., 2017) are among the challenges of STEAM implementation felt by teachers.

This study aims to analyze the weaknesses of the mathematics learning management model at SMPN 3 Numfor Barat. By identifying the factors that hinder the implementation of effective management, it is expected to obtain a deeper understanding of the existing obstacles and solutions that can be applied for improvement. This study is also expected to contribute to the development of a better learning management model, especially in the context of mathematics education in areas with limited geographical conditions and resources.

Overall, this analysis is important to ensure that mathematics learning at SMPN 3 Numfor Barat can run more effectively and produce students who are competent in mathematics, which can later improve the quality of education in Biak Numfor Regency, Papua Province.

Literature Review

Based on the Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Education Personnel, Lecturers, competence is a set of knowledge, skills, and behaviors that must be possessed, internalized, and controlled by a teacher or lecturer who carries out their professional duties. Competence is a person's ability to carry out their main tasks effectively according to their field (Qomariah, 2020). This is in line with Sunyoto (2015) who defines competence as skills in carrying out tasks related to their field and expertise. It can also

be interpreted that teacher competence is the ability of a teacher to carry out their main tasks according to their field of expertise. In this case, the main tasks of the teacher consist of the ability to prepare a lesson plan, teach in class, and evaluate student learning outcomes. Rabo (2018) classifies several characteristics of competent teachers such as a) having goals and intentions to develop students' thinking skills and effective nature. b) individualizing and meeting the needs of individual students. c) providing positive treatment to students and creating a pleasant learning environment. d) loving children and respecting every child. e) professionalism and organization of daily work and wise use of time. f) responsible for his work, contributing to the school, parents, and society. g) having a good personality, showing work ethic, humorous, and creative. h) responsive to change, showing initiative and a positive attitude towards change. g) able to complete tasks on time if trusted. h) able to maintain the ethics of the goals of the profession as a teacher, both in the school environment and in the community.

Mathematics learning management in Junior High School is an important aspect in achieving educational goals. However, there are various weaknesses in the implementation of this management model that can affect the effectiveness of learning. This literature review aims to identify and analyze these weaknesses and the factors that contribute to this problem. Weaknesses in Mathematics Learning Management are as follows: a) Ineffective Learning Planning. Many teachers face difficulties in preparing Learning Implementation Plans (RPP) that are in accordance with the curriculum and student needs. These difficulties include determining competency achievement indicators and choosing appropriate learning methods . b) Suboptimal Class Management. Class management often does not work well, resulting in student inactivity during the learning process. This is caused by a lack of teacher skills in directing students and creating a conducive learning atmosphere. c) Lack of Student Motivation and Interest. Internal factors such as student interest and motivation greatly influence the success of mathematics learning. Research shows that low student interest is a major obstacle in the learning process. Students' inability to see the relevance of the material to everyday life also contributes to this problem. d) Time and Resource Constraints. Many learning models, such as *guided inquiry* , require more time to implement, which is sometimes not available in a dense curriculum. In addition, the availability of teaching tools and materials is also often an obstacle. e) Constraints in Implementing Learning Models. Teachers often do not understand the steps in a particular learning model, so they cannot apply it effectively. This causes learning not to run according to the established model syntax.

Solutions to Overcome the Weaknesses of the Mathematics Learning Management Model such as : a) Training and Professional Development. Improving teacher competency through training and workshops on classroom management and the use of effective learning models can help overcome these weaknesses. b) Collaboration between Teachers and Parents. Cooperation between teachers and parents is very important to increase student motivation. Parents can act as mediators who support the child's learning process at home. c) Implementation of Varied Learning Methods. Using various learning methods that suit students' characteristics can increase their involvement in the learning process, as well as help them find the relevance of mathematical material to everyday life.

Analysis of the weaknesses of the mathematics learning management model in junior high schools shows that there are various internal and external factors that affect the effectiveness of learning. Improvement efforts through teacher training, collaboration with parents, and the application of varied learning methods are needed to improve student learning outcomes in mathematics.

Management

Management of the analysis of weaknesses in the mathematics learning management model at SMPN 3 Numfor Barat, Biak Numfor Regency, Papua Province is an important step to improve the effectiveness of the learning process. Here are the steps to analyze and manage weaknesses in mathematics learning management: a) identify weaknesses. Several approaches can be taken : classroom observation , interviews , evaluation of learning outcomes , and questionnaires . b) analysis of causes of weaknesses such as SWOT analysis, *Fishbone Diagram* , teacher reflection . c) preparation of improvement strategies. b based on analysis can include : improving teacher competency, effective time management, utilization of technology, provision of learning resources. d) Implementation of improvements includes: trial of new models, teacher mentoring, monitoring and evaluation. e) continuous evaluation, to ensure that the improvements implemented have a long-term impact . Common weaknesses that can be found such as a) limited resources. b) lack of creativity in teaching methods. c) low student motivation. d) language barriers. With systematic and collaborative management, weaknesses in the mathematics learning management model can be overcome, so that the quality of education at SMPN 3 Numfor Barat increases.

Teachers' Competence

Analysis of Teacher Competency Weaknesses in Mathematics Learning Management Model at SMPN 3 Numfor Barat, Biak Numfor Regency, Papua Province is an important step

to understand and improve the effectiveness of learning. Teacher competence is the main factor that determines the success of the learning process, especially in subjects such as mathematics that require creative and strategic teaching approaches such as a) dimensions of teacher competence that need to be analyzed . Teacher competence can be categorized into four main dimensions: pedagogical competence, professional competence, social competence, personal competence. b) common weaknesses found in teacher competence include: pedagogical competence, professional competence, social competence, personal competence. c) causes of teacher competence weaknesses as follows: lack of periodic training, limited supporting facilities, challenging geographical conditions, low self-motivation. d) strategies to overcome weaknesses as follows: improving pedagogical competence, improving professional competence, improving social competence, improving personal competence. e) implementation and evaluation include: periodic monitoring, evaluation and training results, collaboration with the government and NGOs. by analyzing teacher competence weaknesses and involving improvement strategies, it is expected that mathematics teachers at SMPN 3 Numfor Barat can improve the quality of teaching. This will have a positive impact on student motivation, learning outcomes, and the quality of education in schools.

RESEARCH METHOD

The type of research applied to achieve the research objectives is qualitative research with a descriptive approach/ case study/ explorative. This type of research is applied to reveal the phenomena that occur in the field of research related to the analysis of the weaknesses of the mathematics learning management model at SMPN 3 Numfor Barat, Biak Numfor Regency, Papua Province in the 3T (Underdeveloped, Frontier, Outermost) area . The research method according to Sugiyono (2023) is a scientific way to obtain data with certain goals and uses. This type of research uses exploratory methods and is qualitative. According to Sugiyono (2023) in qualitative research, data collection is carried out in natural settings (natural conditions), primary data sources, and data collection techniques are more on participant observation, in-depth interviews and documentation. Qualitative research is a research method based on philosophy and uses researchers as key instruments (Sugiyono, 2023). This research was conducted at SMPN 3 Numfor Barat which is located on Numfor Island, a very underdeveloped area . The subjects of this study were determined using the *purposive sampling method* so that the information needed comes from informants who have knowledge about the substance being studied. This school has 10 PNS and 2 PPPK consisting of 1 Principal, 8 Teachers, 3 Administration and 141 students. Currently, this study consists of 1 principal, 1

subject teacher. The data of this study were collected through observation and in-depth interviews with 1 principal, 1 subject teacher. The research data were processed through the stages of data collecting, data display, data reduction, and data conclusion. To ensure the validity of the research data, the researcher conducted data confirmability and credibility by involving the Education Office, Education Resource Development Section and school supervisors.

The research instrument is the researcher himself using theory as a measure to understand the situation in the field. In addition, the researcher also uses an interview guide so that the data collection process takes place effectively and substantively in the field. The following is an interview guide used by the researcher to explore information related to the analysis of the weaknesses of the mathematics learning management model at SMPN 3 Numfor Barat, Biak Numfor Regency, Papua Province in the 3T (Underdeveloped, Frontier, Outermost) area.

Table 1. Field Interview Guide

No	Management Functions	Management Function Indicators
1	Planning	1.1. Planning is carried out by involving all components of the activity. 1.2. Planning is done by using information internal available 1.3. Planning is done by using available external information. 1.4. Planning is done with SWOT analysis 1.5. Concrete planning available
2	Organizing	2.1. Job description available for the organizer 2.2. Transparent division of tasks available 2.3. There is a division of authority and responsibility 2.4. The organizational structure of the organizers is available
3	Implementation	3.1. Implementation according to initial planning 3.2. Obstacles and challenges to program implementation 3.3. Have a strategy and implementation method 3.4. Commitment in the program implementation process 3.5. All components perform their respective tasks. 3.6. There are changes in planning in the field
4	Control	4.1. The implementation team coordinates well 4.2. The leader provides other alternatives when there are obstacles and challenges 4.3. There is supervision of each work component
5	Evaluation	5.1. There are program evaluation instruments 5.2. Evaluation is carried out effectively 5.3. Evaluation results are given to all components

		5.4. The evaluation results are followed up for further planning.
--	--	---

The data collection of this study was conducted through in-depth interview techniques with 1 principal, 1 subject teacher. Furthermore, the researcher also conducted a documentation study to study the policies, regulations, and procedures for analyzing the weaknesses of the mathematics learning management model and to strengthen the data obtained from the interview results. The researcher also conducted an observation study to see directly in the field the implementation of the development of the mathematics learning management model in very disadvantaged areas . The data of this study were analyzed using the Miles & Hubberman (2014) model which consists of the stages of data display, data reduction, data verification, and conclusion drawing. This study was conducted using an interactive model proposed by Saldana (Miles, Huberman & Saldana, 2014: 18-25). Activities in qualitative data analysis are carried out interactively and continue continuously until complete, so that the data is saturated. Activities in the analysis consist of data condensation, data presentation, and conclusion drawing and verification. According to Miles and Huberman (quoted in Sustiyowandi & Tri Nurharsono, 2013), data processing involves four main steps: data collection, data reduction, data presentation, and drawing conclusions. verification. Here is a brief explanation of each step and the related activities: Data collection techniques : a) interviews were conducted with research subjects, including principals, mathematics teachers, students, administrative staff, and parent representatives . This aims to collect information about experiences, challenges, and strategies that have been implemented; b) direct observations were conducted in the school environment to observe learning facilities, student interactions with teachers, and the implementation of the learning process; c) documentation, consisting of relevant documents such as curriculum, performance reports, and personnel data, was analyzed to obtain additional information that supports the results of interviews and observations. Data processing steps obtained through various techniques are processed through the following stages: a) initial data collection : all data are collected from various sources. b) data reduction: irrelevant data is filtered to focus on information that supports the research objectives. c) data presentation: reduced data is arranged into narratives or tables to facilitate analysis. d) data analysis: data is analyzed using a qualitative approach to identify relevant patterns, relationships, and themes. e) verification and validation : data validity is tested through triangulation of sources, methods, and theories to ensure the accuracy of the findings. f) drawing conclusions: conclusions are drawn based on verified research findings. The purpose of this qualitative descriptive research

is to provide a systematic, factual and accurate description of a certain fact. The fact in question is about the role of parents in the education of gifted children in the Parents Support Group for Gifted Children community. The collected research data is validated using the triangulation technique. In addition, to determine the validity of the research data, the stages of data confirmation and data credibility are carried out to determine the level of truth of the collected research data. By using a well-planned research method, the results of the analysis of the weaknesses of the mathematics learning management model at SMPN 3 Numfor Barat can be the basis for effective and sustainable improvements .

FINDINGS AND DISCUSSION

Research Findings

The analysis of the weaknesses of the mathematics learning management model can be described based on the findings obtained from data collection techniques such as interviews, observations, and documentation. The following is an example of a description of the findings for each technique: a) Interview . Interviews were conducted with teachers, students, or principals to understand their perceptions and experiences of the mathematics learning management model. Findings that can be obtained: Teachers' Views: Teachers stated that the current learning model focuses too much on problem solving and does not provide enough space for exploring mathematical concepts. Student Difficulties: Students find it difficult to understand the material because the methods used are too fast or less relevant to their needs. Management Barriers: The principal revealed that there were obstacles in coordination between mathematics teachers in implementing a uniform learning model. example of findings: Interviews with teachers revealed that memorization-based learning tends to make students quickly forget basic mathematical concepts. b) Observation . Observations were conducted during the classroom learning process to directly observe how the learning management model was implemented. Findings that can be obtained: Student Activity : Most students appear passive during the learning process, especially during the theory explanation session. Teacher-Student Interaction: Teachers are more dominant in learning, while students are rarely involved in discussions or interactive activities. Time Management: Observations show that time allocation is unbalanced; most of the time is spent on solving problems, so there is less in-depth discussion. Examples of findings: From the observation results, it was found that students tend to lose focus when learning takes place for more than 30 minutes without any variation in methods. c) Documentation . Documentation includes analysis of learning plans (RPP), syllabus, student evaluation results, and other notes related to the mathematics learning process.

Findings that can be obtained: Lesson Plan and Syllabus: Lesson Plan shows a lack of variation in learning methods, dominated by lecture and practice questions. Evaluation Results : The grade documents show that many students scored low on questions that required in-depth conceptual understanding. School Policy : Policy documents indicate that there are no specific guidelines that support problem-solving based learning. Examples of findings: RPP documentation shows that the learning model provides little space for group discussion activities or collaborative problem solving.

Description of research data collected through observation, documentation, and interview techniques for the analysis of weaknesses in the mathematics learning management model at SMPN 3 Numfor Barat, Biak Numfor Regency, Papua Province can be explained as follows: a) data from observation techniques: Learning Activities is Data that includes patterns of teacher and student interaction during the mathematics learning process, such as the teaching methods used, the level of student participation, and the effectiveness of time management. Facilities and Infrastructure: Classroom conditions, availability of teaching aids, learning media, and other supporting facilities relevant to the learning process. Teacher and Student Behavior: Observation of student motivation, enthusiasm, and difficulties, as well as teacher responses in dealing with learning problems. b) data from documentation techniques: Official School Documents : Information from the applied curriculum, learning programs, syllabus, lesson implementation plans (RPP), and student learning outcome evaluation records. Other Supporting Data: Photos, videos, or administrative evidence related to the learning process, such as activity reports and documentation of learning activities in class. Student Statistics: Data on the number of students, attendance rates, and academic assessment results in mathematics subjects. c) data from interview techniques: Teacher Interviews: Data obtained from interviews with mathematics teachers regarding their experiences in teaching, challenges faced, the effectiveness of the methods applied, and the need to improve the quality of learning. Student Interviews: Students' perspectives on the learning methods used, the difficulties they face, and their suggestions or expectations for the learning process. Principal and Education Personnel Interviews: Their views on learning management, school support for mathematics learning, and policies that support the development of learning quality.

Data Analysis Objectives: a) Identify weaknesses in mathematics learning management, such as lack of innovation in teaching methods, minimal supporting facilities, or low student motivation. b) Provide a comprehensive picture of the factors that influence the effectiveness of mathematics learning at SMPN 3 Numfor Barat. c) Provide a basis for recommendations for

improvements in the mathematics learning management model that is more appropriate to local conditions and student needs.

Discussion

Analysis of Weaknesses of Mathematics Learning Management Model Based on Management Functions. In learning management, there are main functions: planning, organizing, implementing, and evaluating. The following is an analysis of weaknesses in the mathematics learning management model, activities carried out in each function, and the implications of its benefits if implemented optimally: a) Planning. What is Done: Designing a learning plan (RPP) and syllabus according to the curriculum, Determining the objectives of mathematics learning, methods, and media to be used, Arranging time allocation for each topic or activity. Weaknesses Found: Lesson plans are too problem-solving oriented without emphasizing conceptual understanding, Lack of integration of innovative learning methods, such as problem-solving or project-based learning, Inadequate time allocation for in-depth discussion or exploration . Benefit Implications (If Optimized): Good planning can increase student engagement in understanding mathematical concepts, The use of varied methods will help students with various learning styles, Balanced time allocation allows students to explore the material and practice critical thinking skills. b) Organizing. What is Done: Arranging the division of roles between teachers and students in the learning process, Determining work groups or collaborative activities, Organizing media and learning resources (eg, visual or digital aids). Weaknesses Found: The organizational structure focuses too much on the role of the teacher so that students are less empowered , Lack of activities involving cooperation or group discussions , Learning media used are less relevant or interesting to students . Implications of Benefits (If Optimized): Good organization will create a more structured and conducive learning environment, Group activities can improve students' social skills and understanding through discussion, Interesting learning media will motivate students and make learning more effective. c) Implementation (Actuating) . What is Done: Carrying out learning according to plan using designed methods and strategies, Providing material explanations, facilitating discussions, and directing student activities, Managing the class so that learning runs smoothly. Weaknesses Found: The implementation of learning tends to be monotonous, dominated by lectures and practice questions, Lack of flexibility in responding to different student needs, Minimal active involvement of students in the learning process. Benefit Implications (If Optimized): Interactive implementation will increase student participation and understanding of mathematical concepts, Flexible teachers can adjust the approach based on

individual student needs, Dynamic learning will make students more enthusiastic and motivated. d) Evaluation (Controlling), What to Do: Conducting assessments of student learning outcomes through tests and assignments, Analyzing the effectiveness of the learning methods used, Providing feedback to students for improvement. Weaknesses Found: Evaluation only focuses on results (grades) without paying attention to the student's learning process. Assessment does not reflect critical thinking and problem solving skills. Lack of constructive feedback from teachers to students. Benefit Implications (If Optimized): A comprehensive evaluation can help students understand their strengths and weaknesses, Process assessment can encourage students to participate more actively in learning. Good feedback will increase motivation and help students improve their understanding.

analysis of weaknesses and obstacles in the mathematics learning management model based on management functions, their impacts, and consequences for the learning process, learning quality, students, teachers, and schools: a) Planning. Weaknesses and Obstacles: Learning planning does not pay enough attention to the variety of methods to support students' learning needs, the main focus is on completing the curriculum without emphasizing the mastery of in-depth mathematical concepts, and the lack of technology integration in learning plans. The time allocation is not proportional between theory and practice. Impact: Monotonous learning plans make students less interested and less motivated . Teachers have difficulty adjusting learning to the needs of students in the class. As a result: Learning Process: Limited to delivering materials without effective interactivity. Learning Quality: Decreased because learning does not facilitate the development of students' critical thinking skills. Students: Students have difficulty understanding mathematical concepts, especially abstract ones. Teachers: Teachers become too attached to inflexible plans. School: The image of the school as a quality institution can decline if students do not achieve optimal results. b) Organizing. Weaknesses and Obstacles: The distribution of teacher and student roles is not balanced; learning is too dominated by teachers, Lack of cooperation between mathematics teachers in designing effective learning strategies, Learning media and aids are not optimally utilized. Impact: The learning process becomes rigid and less dynamic. Students' collaborative activities do not develop, so students' teamwork skills are low. As a result: Learning Process: Not optimal because students are not actively involved. Quality of Learning: Decreases because students do not get rich learning experiences. Students: Lack of confidence in conveying ideas or interacting in groups. Teachers: Teachers cannot utilize students' full potential due to lack of collaborative activities. School: Failure to achieve the target of increasing student

competency in teamwork-based learning. c) Implementation (Actuating) Weaknesses and Obstacles: The learning methods used are monotonous, for example only using lectures and practice questions, Lack of variation in learning strategies that encourage exploration, such as problem-based or project-based learning , Students often become passive during the learning process. Impact: Learning is not interesting so that students quickly lose focus. Students have difficulty in connecting theory with practical applications of mathematics. As a result: Learning Process: Learning takes place one-sidedly (teacher-centered) without actively involving students. Learning Quality: Low because learning is less relevant to students' real-world needs. Students: Do not have critical thinking or problem solving skills. Teacher: Not developing in implementing learning innovations. Schools: School competitiveness decreases because they are unable to provide high-quality learning. d) Evaluation (Controlling). Weaknesses and Obstacles: Evaluation focuses more on outcomes (grades) than on the student learning process. Assessment does not include higher-order thinking skills, such as analysis and synthesis. Feedback to students is rarely given in depth and constructively. Impact: Students do not know their weaknesses in detail so it is difficult to make improvements. Teachers do not have enough data to improve learning methods. As a result: Learning Process: There is no significant improvement because the evaluation is only a formality. Learning Quality: Decreased because evaluations do not reflect students' conceptual understanding. Students: Not motivated to learn better because they don't get constructive feedback. Teachers: Difficulty designing more relevant learning based on evaluation results. Schools: Unable to demonstrate improvements in learning quality to stakeholders .

In the analysis of the mathematics learning management model at SMPN 3 Numfor Barat, there are various weaknesses that can affect the effectiveness of the mathematics learning process at the school. Based on the results of observations, interviews, and documentation, these weaknesses are related to aspects of planning, implementation, evaluation, and support for facilities and infrastructure. This discussion will further describe the identified weaknesses and their impact on mathematics learning: a) Weaknesses in learning planning. b) Weaknesses in learning implementation. c) Lack of Use of Learning Media. Weaknesses in the mathematics learning management model at SMPN 3 Numfor Barat are related to various aspects, ranging from less structured planning, less interesting and varied implementation, limited evaluation, to limited facilities and infrastructure. All of these factors are interrelated and influence each other, thus reducing the quality of mathematics learning at the school. To improve the quality of mathematics learning, improvements are needed in all these aspects, including improving

teacher competence, using more varied and innovative methods, and fulfilling the need for more adequate facilities and infrastructure.

CONCLUSION

The results of the research on the analysis of weaknesses in the mathematics learning management model have important value for further research in several aspects, including: a) Providing a Theoretical Basis for the Development of a New Model. This study identifies weaknesses in the learning management function (planning, organizing, implementing, and evaluating). Implications for Further Research: Future researchers can use these results as a basis for designing learning management models that are more innovative and relevant to students' needs. New models developed may emphasize problem-based approaches, technology, or collaborative learning. b) Informing the Need for More Inclusive Learning, This study shows weaknesses in aligning learning with the needs of diverse students. Implications for Further Research: Further studies could explore ways to personalize mathematics learning to be more inclusive. Research can be focused on the application of adaptive learning technology to meet the needs of students with different learning styles. c) Becoming a Basis for Innovation in Learning Media and Methods . The results of the study revealed limitations in the variety of learning methods and media used in teaching mathematics. Implications for Further Research: Researchers can evaluate the effectiveness of interactive learning media, such as digital applications or computer-based simulations, to improve understanding of mathematical concepts. Further research can also test new methods, such as flipped classroom or hybrid learning, to improve learning implementation. d) Exploring a More Comprehensive Evaluation Approach, This research shows that evaluation often focuses on outcomes (grades) without assessing the learning process as a whole. Implications for Further Research: Further studies can design more comprehensive evaluation instruments, covering students' cognitive, affective, and psychomotor aspects. Research can also explore how portfolio-based evaluation or authentic assessment affects the quality of mathematics learning. e) Improving Teacher Quality and Professional Training , This study highlights the importance of the role of teachers in the management of mathematics learning. Implications for Further Research: Researchers can explore how professional training that focuses on mathematics learning innovation can help teachers improve their competence. Further studies can also examine the relationship between teacher management skills and student success in understanding mathematics. f) Providing Evidence for More Effective Education Policy , This research can be used as a basis for developing policies that support better mathematics learning. Implications for Further

Research: Future research could examine how school policies, such as resource provision or curriculum development, influence the effectiveness of mathematics learning. The study can also evaluate the impact of implementing policies based on the findings of this research on student learning outcomes.

Based on the results of the analysis of the mathematics learning management model at SMPN 3 Numfor Barat, there are several major weaknesses that need to be considered to improve the effectiveness of learning. These weaknesses are spread across various aspects, from planning, implementation, evaluation, to the facilities and infrastructure used in the learning process : a) Weaknesses in Learning Planning. b) Weaknesses in Learning Implementation. c) Weaknesses in Learning Evaluation. d) Weaknesses in Facilities and Infrastructure. e) Weaknesses in Student Motivation and Participation. To improve the quality of mathematics learning at SMPN 3 Numfor Barat, improvements need to be made in all aspects of learning management. Several steps that can be taken include: a) Improvements in planning by linking mathematics material to students' daily lives and utilizing learning technology. b) Use of more varied methods and actively involving students in the learning process. c) Improvement of learning facilities and infrastructure, including teaching aids and technology-based learning media. d) More comprehensive evaluation, covering cognitive, affective, and psychomotor aspects, with constructive feedback to help student development. With these improvements, it is hoped that mathematics learning at SMPN 3 Numfor Barat can be more effective, interesting, and relevant for students, and can improve their achievements and motivation in learning mathematics.

REFERENCES

- Abdussamad , Zuchri . (2021). *Qualitative Research Methods*. Makasar: CV. syakir Media Press .
- Anizal, D. R & Hartati, S. (2022). Implementation of STEAM (Science, Technology, Engineering, & Math) Based Learning at Hang Tuah Padang Kindergarten. *Pesona PAUD Scientific Journal*. 9(1), 33-45. <http://ejournal.unp.ac.id/index.php/paud/index>
- Destania, Y. & Riwayati, S. (2021). Development of Student Worksheets to Develop Mathematical Problem Solving Skills on Pythagorean Theorem Material. *Scholar's Journal: Journal of Mathematics Education*, 5(2), 949–962. <https://doi.org/10.31004/cendekia.v5i2.569>
- Dezhanbkan, F., Baranovich, D.L., Abedalaziz, N., & Dezhanbkan, S. (2021). Impacts of Metacognition Management System (MMS) Training Course on Metacognitive

Competencies. *International Education Studies* , 14(1) .
<https://doi.org/10.5539/ies.v14n1p12> .

Izzati, NN, & Dewi, NR (2023). Development of STEAM-Based Mathematics Teaching Materials on Direct and Inverse Proportion to Improve Mathematical Problem-Solving Ability and Self Regulated Learning. *Unnes Journal of Mathematics Education* , 12 (1), 51-59. <https://doi.org/10.15294/ujme.v12i1.68735>

Ichsan, ichsan., Mulyati, Mulyati., Duma, Sonny Yalti., Nirfayanti, Nirfayanti. The Effectiveness of Mathematics Learning with the STEAM Approach in Improving Students' Critical Thinking Skills. (2024). *Aksioma Education Journal* , 1 (3), 1-16. <https://doi.org/10.62872/kdepgn33>

Innabi, H., & Sheikh, O.E. (20 07). The Change in Mathematics Teachers' Perceptions of Critical Thinking after 15 Years of Educational Reform in Jordan. *Educational Studies in Mathematics* , 64(1), 45–68. <https://doi.org/10.1007/s10649-005-9017-x>

Ministry of Education, Culture, Research, and Technology. (2021). Decree of the Minister of Education, Culture, Research, and Technology Number 160/P/Year 2021 Concerning Special Regions Based on Geographical Conditions. Retrieved from https://jdih.kemdikbud.go.id/detail_peraturan?main=2413

Mu'Minah, Iim H., & Yeni -. Suryaningsih. (2020). "Implementation of Steam (Science, TECHNOLOGY, Engineering, Art and Mathematics) in 21st Century Learning." *Bio Education*, 5(1). <https://dx.doi.org/10.31949/be.v5i1.2105>

Park, H. J., Byun, S. Y., Sim, J., Han, H., & Baek, Y. S. (2016). Teachers' Perceptions and Practices of STEAM Education in South Korea. *Eurasian Journal of Mathematics, Science and Technology Education* , 12(7), 1739-1753. <https://doi.org/10.12973/eurasia.2016.1531a>

Pohan, AE ., Daulay, HM ., & Sahrir, A. . (2021). Improving Teachers' Professionalism Through Blended-Based Training in Indonesia's Remote Area. *London Journal of Social Sciences* , (1), 67–78. <https://doi.org/10.31039/ljss.2021.1.43>

Pohan, AE, Hadiyanto, A., & Azis, DA (2021). Virtualization of Teacher Training on Improving of Online Teaching Competence for the Students of Riau Island University in Indonesia. *London Journal of Social and Science*, 2(1) . <https://doi.org/10.31039/ljss.2021.2.51>

Sakmurzaeva, N. (2018). The Role of Education in Economic Development: A Comparison of South Korea and Kyrgyzstan. *International Conference on Eurasian Economies 2018*, 29 - 33 . <https://doi.org/10.36880/c10.02040>

Saragih, D. I., & Surya, E. (2017). Analysis of the Effectiveness of Mathematics Learning Using Contextual Learning Model . *International Journal of Sciences: Basic and Applied Research (IJSBAR)* , 34(1), 135-143. Retrieved from <https://www.gssrr.org/index.php/JournalOfBasicAndApplied/article/view/7494>

- Siri, A., Supartha, IWG, Sukaatmadja, IPG, & Rahyuda, AG (2020). Does teacher competence and commitment improve teacher's professionalism. *Cogent Business & Management*, 7(1). <https://doi.org/10.1080/23311975.2020.1781993>
- Supinah, Roslani., & Nuriadin, Ishaq. (2022). Analysis of Obstacles to Learning Mathematics Online in View of Constructivism Theory. *International Journal of Progressive Mathematics Education*, 2(1),15-23. <https://doi.org/10.22236/ijopme.v2i1.881>
- Starzinski, Ariel, "Foundational Elements Of A Steam Learning Model For Elementary School" (2017). *School of Education and Leadership Student Capstone Theses and Dissertations* . 4349.
https://digitalcommons.hamline.edu/hse_all/4349
- Ulva, E., Maimunah, M., & Murni, A. (2020). The Influence of Problem Based Learning Model on Mathematical Problem Solving Ability of Grade VII Students of Junior High Schools in Kuantan Singingi Regency on Social Arithmetic Material. *Scholar's Journal: Journal of Mathematics Education* , 4(2), 1230–1238. <https://doi.org/10.31004/cendekia.v4i2.356>