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## **Analysis of Teacher Problems Related to Learning Devices Using the Mikir Approach of SMP Students**

Etik Setijawati<sup>a\*</sup>, Elsje Theodora Maasawet<sup>b</sup>, Yusak Hudiyono<sup>c</sup>

<sup>a,b</sup>dept. Biology, Mulawarman University, East Kalimantan, Indonesia

<sup>c</sup>dept. Indonesian language, Mulawarman University, East Kalimantan, Indonesia

<sup>a</sup>Email: etiksetijawati71@gmail.com, <sup>b</sup>Email: elsjetheodora@fkip.unmul.ac.id,

<sup>c</sup>Email: yusak.hudiyono@fkip.unmul.ac.id

### **Abstract**

In science subjects students must master knowledge well so that they are able to think critically to be able to solve problems related to the material, therefore learning tools are needed that can accommodate student activities so that learning objectives can be achieved. The aims of this research are: (1). To get an overview of the constraints experienced by teachers in preparing learning tools with the MIKiR approach (2). To get an overview of the extent of the teacher's constraints in recognizing and implementing active learning with the MIKiR approach in training students' critical thinking skills (3). To obtain an overview of the application of the type of assessment carried out by the teacher in measuring student learning outcomes and critical thinking skills. The data collection technique used observation with a survey method in the form of a questionnaire distributed to 6 schools in Muara Badak with 10 science teachers as respondents. Researchers obtained data from the recapitulation of answers to all respondents' questionnaires, namely 1) The teacher had difficulty compiling learning tools so that they had implications when using learning devices in teaching and learning activities. From the survey results, it was obtained that 80% of respondents had difficulty compiling learning tools and 50% had difficulty using them in learning. 2).

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\* Corresponding author.

The teacher only knows active learning with the MIKiR approach but does not implement it in learning because he does not know the implementation steps. Data obtained 100% of respondents already know the MIKiR approach, but only 30% of respondents implement the MIKiR approach and 67% experience problems in implementing it. 3) The teacher's lack of ability to assess critical thinking skills is caused by a lack of knowledge of critical thinking indicators. It was found that 80% of respondents knew a small proportion of critical thinking indicators but only 30% implemented these indicators. From the observation results, it was also obtained data that 100% of respondents felt the need and 80% of respondents were willing to implement the MIKiR approach in their schools. The need for assistance in the preparation of tools and modeling the MIKiR approach in training students to think critically in the hope that an increase in science learning outcomes will be obtained.

**Keywords:** Teacher Problems; Learning Tools; MIKiR Approach.

## **1. Introduction**

Improving the quality of education can be done by improving the learning process based on interaction or reciprocal relationships between teachers and students in learning. In order for the learning to be given according to the expected goals, a teacher should prepare learning with learning tools that contain learning approaches/methods according to the conditions of students in their school and according to the applicable curriculum. The curriculum is a set of plans and arrangements regarding objectives, content, and learning materials as well as the methods used as guidelines for implementing learning activities to achieve certain educational goals [1]. Learning tools help teachers to guide and create more active learning situations as well as to shape and build knowledge in students (1).

From the results of interviews with junior high school science teachers in Muara Badak District, learning so far has been carried out classically with the lecture method and partly uses question and answer so that it does not train students to think critically (2). The results of the evaluation and reflection of the learning process in Muara Badak show that learning is not fun, students are passive, the ability to answer is only according to the text book, lack of interaction, lack of initiative, do not dare to convey their work and do not know how much material they have mastered (3). Learning is only routine to achieve curriculum targets but is not balanced with absorption targets. Teachers find it difficult to arouse student activity and generate students' critical thinking skills in learning individually or in groups (4). Science learning outcomes are still below the KKM and the low ability of students to solve problems in science lessons both in the realm of knowledge and skills (5).

It continued with observation activities starting on July 19-24 2021 carried out in 6 schools in Muara Badak (SMPN 1, SMPN 2, SMPN 4, SMPN 5, SMPN 6, SMPN 7 Muara Badak) with 10 teachers as respondents. Observation results obtained data that 80% of respondents had difficulty making learning tools, 50% had difficulty implementing existing learning tools. Respondents who had applied the active learning model and experienced problems in implementing it were 60%. All respondents already knew about the MIKiR approach, but only 30% had implemented it and 67% experienced problems in implementing it because they did not know the steps of the MIKiR approach to improve critical thinking skills so that all respondents felt the need and were

willing to be provided with examples of the MIKiR approach in their schools (6 ). The existence of problems Teachers find it difficult to make devices and lack in developing student creativity resulting in low learning outcomes and students are less able to think critically (7). Teachers need devices that can accommodate increased critical thinking skills and student learning outcomes, therefore alternative solutions are needed to overcome these problems (8). To achieve these expectations, learning tools are needed that implement the MIKiR approach in learning (9). Researchers wish to improve the quality of learning by applying the MIKiR approach and developing learning tools through the "MIKiR" approach that has been developed by the Tanoto Foundation(10).

In the science subject Class VIII Middle School material on the structure and function of plants, students must master knowledge well so that they are able to think critically to be able to solve problems related to this material in everyday life. Therefore, learning tools are needed that can accommodate student activities so that learning objectives can be achieved. reached (11). The MIKiR learning device is a learning device that contains steps for teacher and student activities in accordance with the elements of the MIKiR approach (Experience, Interaction, Communication and Reflection) and is more representative and practical so that it can activate students and stimulate students to think critically (12) . Learning designed with the MIKiR approach can improve the quality of learning so that it has an impact on improving student learning outcomes (13).

The MIKiR approach was chosen as an alternative with the consideration that this approach makes students active in learning so that students go through learning with elements of the MIKiR approach, namely experiencing where students are directly involved in learning; Students also experience interactions between students and students, students with teachers and students with their learning environment. Students are also trained to communicate all of their work, convey ideas, and express opinions, finally learning is closed by reflecting on the learning that has been experienced (14). Another consideration was that the MIKiR approach was chosen, that this approach has been tested in partner schools in several provinces in Indonesia and has been proven to give good results which show an increase in the ability to think critically and be active in students. The results of the show case of partner schools that have consistently applied the MIKiR method show rapid development in all areas. The MIKiR method shows that there is a meaningful teaching breakthrough, namely collaborative teachers and students to play a role in learning (15). The advantages of the MIKiR approach are the 4M elements (asking, trying, reasoning and communicating) and 4 C (Collaboration, Critical Thinking, Communication, Creativity) that have been accommodated and the MIKiR approach even has stages that train students to self-reflect.

## **2. Research methods**

### **Type, Population and Procedure**

This type of research is qualitative discriminatory percentage, when the research was conducted in March - July 2021 and the research locations were in 6 schools (SMP 1, SMPN 2, SMPN 4, SMPN 5, SMPN 6, SMPN 7 Muara Badak) with a population of 10 science teachers in the District Rhino Estuary

The research procedure in this needs analysis is part of the research implementation plan which will have two stages, namely the planning and development stage and then the implementation for data collection. At this stage it is a needs analysis, which is still in the identification stage of the problem of the teacher's ability to plan learning related to learning with the MIKiR approach which will be planned further so as to improve students' abilities.

### **Research Instruments**

The research instrument was prepared as a measuring tool for data collection [2]. Instruments were prepared according to the needs of the research, namely a needs questionnaire was given to science subject teachers. The needs questionnaire contains a list of questions related to approaches, strategies and preparation of learning tools. This needs questionnaire aims to find out the importance of preparing learning tools carried out by teachers to be applied in learning so that later they will be able to develop students' abilities in critical thinking and learning outcomes. The needs analysis data was obtained by conducting observations in schools and the results of interviews conducted with junior high school science teachers in the Muara Badak sub-district.

### **Data Analysis Techniques**

Data analysis techniques were carried out to obtain information about teacher problems in preparing learning tools. The data analysis technique used in this study was descriptive qualitative analysis and quantitative analysis using simple analysis.

Calculating the total score of answers from the teacher using the formula:

$$P = \frac{\text{Number of respondents' answers according to indicators}}{\text{Number of all respondents}} \times 100 \%$$

P = Percentage of each indicator

## **3. Results and discussion**

### **RESULTS**

Before conducting the research, a needs analysis was carried out for science teachers in Muara Badak District, namely at SMPN 1, SMPN 2, SMPN 4, SMPN 5, SMPN 6 and SMPN 7 Muara Badak with data collection techniques using observation with survey methods in the form of questionnaires and interviews to clarify if there is something unclear in filling out the questionnaire. All the respondents, totaling 10 teachers, were all linear with science subjects with the following details: SMPN 1 Muara Badak is taught by 3 teachers; SMPN 2 Muara Badak has 2 teachers; SMPN 4 Muara Badak has 2 teachers; SMPN 5 Muara Badak is managed by 1 teacher; SMPN 6 Muara Badak has 1 teacher and SMP 7 Muara Badak has 1 teacher. Teachers from these schools feel incapable of developing learning tools according to their method/approach and it takes a long time to develop their own lesson plans while learning must continue. Besides that, besides teaching, teachers also get additional

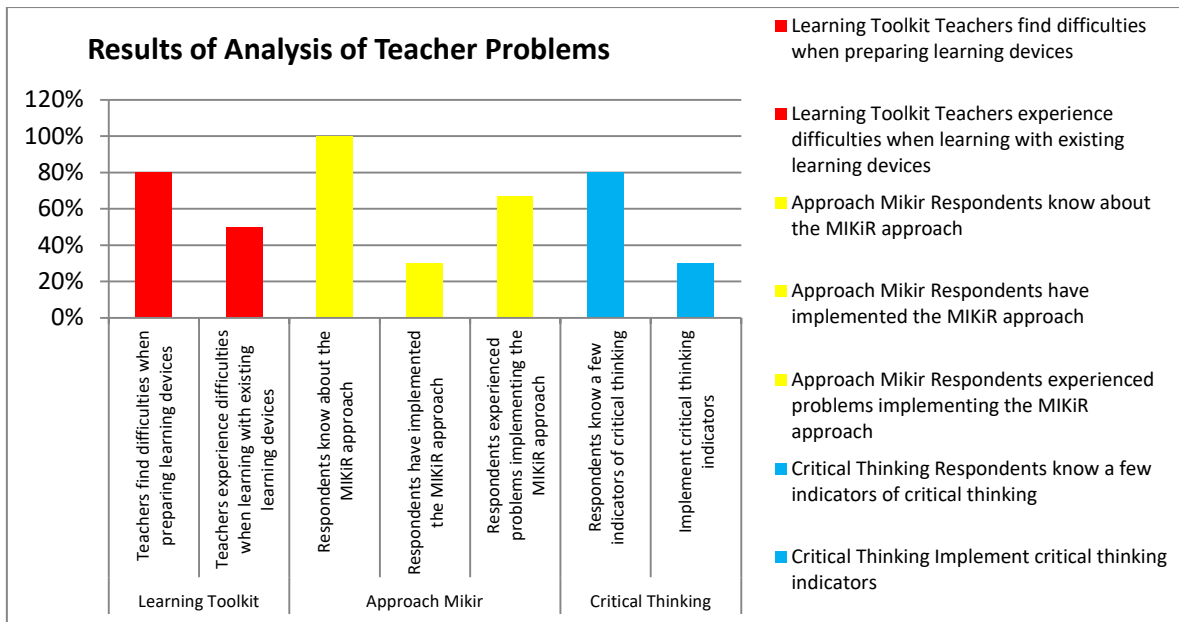
assignments at school which take up quite a bit of time and energy, so that for administrative completeness of learning materials, all that remains is to print the lesson plan obtained from the publisher and some of it is obtained from the MGMP. Meanwhile, not all of the existing tools can be applied in class and not all materials have lesson plans so that the learning process is more oriented towards lectures, questions and answers and worksheet assignments. Based on filling out the questionnaire which was clarified by interviews, there are several problems, namely:

- a. Teachers have difficulty compiling learning devices
- b. Teachers have difficulty implementing existing learning tools.
- c. Teachers experience problems in applying the active learning model
- d. Teachers know about the MIKiR Approach but experience problems in implementing it because they do not know how to use the MIKiR approach
- e. Teachers feel the need for examples of learning tools for the MIKiR approach and are willing to provide assistance to implement them in their schools.

The above problems are the same as what was done in the research needs analysis entitled "Analysis of Teacher Problems Regarding Biology Learning Model-Based Learning Devices in High School" in the journal[3]. This problem is caused by the teacher's lack of understanding in the preparation of learning tools, including syllabus, lesson plans, teaching materials, learning media, worksheets, and evaluations that can be used as a teacher's reference in the learning process. From the problem identification carried out by researchers at the Muara Badak District Middle School, it was obtained according to the table below:

**Table 1:** Results of Analysis of Teacher Problems

Learning Toolkit		Approach Mikir			Critical Thinking	
Teachers find difficulties when preparing learning devices	Teachers experience difficulties when learning with existing learning devices	Respondents know about the MIKiR approach	Respondents have implemented the MIKiR approach	Respondents experienced problems implementing the MIKiR approach	Respondents know a few indicators of critical thinking	Implement critical thinking indicators
80%	50%	100%	30%	67%	80%	30%



**Figure 1:** Results of Analysis of Teacher Problems

**Discussion**

Based on the identification of problems in the field on the analysis of needs faced by science teachers at junior high schools in Muara Badak District, it is necessary to have the right solution to overcome them, namely researchers trying to assist in the preparation of tools through the MIKiR approach to improve critical thinking skills and learning outcomes as an alternative in overcoming these problems.

This data collection stage is to find out how far the teacher has learning tools that are commonly used in his class. From the results of the questionnaires and interviews with 10 teachers as respondents all have learning tools using devices that come from publishers or devices that are spread across WA and from MGMP. Based on these conditions, many are not suitable or cannot apply the learning model to these devices to be applied in class. Judging from the data obtained, there were 8 teachers having difficulty making learning devices and 5 teachers having difficulty implementing them. From the questionnaires and interviews, all respondents were familiar with MIKiR, but only 3 teachers tried to apply it and 2 of them had difficulty implementing it because they did not know more about its application. 8 teachers know a few indicators of critical thinking although not all of them understand it and only 3 teachers do learning with critical thinking indicators.

The MIKiR approach is a learning approach that applies the principles of active learning. "In active learning activities the teacher must be able to understand the elements of active learning and how to implement them, the teacher must be able to know what students are doing, the teacher must be able to bring up what activities are carried out by students and the teacher must be able to respond to what students are doing. embodied in exploration, elaboration and confirmation activities" [4, 5].

The activities of teachers and students in the MIKiR approach [6] include:

1) When experiencing students can make observations, experiments, interviews and make works while the teacher's activities: a) observe student activities by paying attention to observations made by students that have been carried out carefully, carefully and record the results of observations completely and correctly; b) Asking provocative questions so that students get more information so that they are able to understand and master the material to become rich; c) Asking questions/providing comments on the answers given by students; d) Observe especially if there is a dangerous work step; e) Questioning certain steps, especially in terms of their effectiveness; f) Providing assistance to students who experience delays or imperfections in carrying out experimental activities [4](Module 1 MBS good practice, Tanoto Faoundation Smart Program, 2018: 12-14).

2) Interaction is the process of exchanging ideas of two or more people, exchanging thoughts/ideas/ideas, discussing and responding to ideas from other people. Interaction activities can encourage students to express ideas and self-reflect so that they also support a good understanding of concepts (Module 1 Good practice of the Tanoto Foundation's smart program MBS 2018: 15). Teacher interaction activities provide actual problems to be solved together, give assignments, provoke students to ask questions, give comments and respond to what students do, be active, answer, give comments.

3) Communication is carried out by students through delivering work results or reporting activities that have been carried out orally and in writing will build courage and confidence in students. Furthermore, character values are developed, namely developing honest, conscientious attitudes, tolerance, the ability to think systematically, express opinions briefly and clearly, and develop good and correct language skills.

4) Reflection is an activity of looking back at the learning experience and taking lessons (lesson Learned) so that learning is better in the future (Module 1 MBS good practice Tanoto Fooundation smart program, 2018: 7). Reflection activities bring up an attitude of being willing to accept and criticize and improve oneself for future improvements. This reflection activity is carried out by the teacher at the end of each lesson.

In the application of active learning, teachers must be able to make the lessons taught challenge and stimulate students' creativity to find and be willing to respond. So the teacher must pay attention to the principles in the effort to apply active learning (active learning). One of the principles that must be considered is that the learning orientation must shift from teacher-oriented to student-oriented. This change in orientation will of course require educators to rethink about the existence of a passive class, and must innovate or vary with a pedagogical approach that can make students more actively involved in the learning process. Student involvement in the learning process is vital so that: a) students can master various skills or skills such as critical thinking and problem solving skills; b) students can complete the learning program that must be completed[7].

#### **4. Conclusion**

The conclusions in this study are (1) the understanding of science teachers regarding learning devices with the MIKiR approach is still very minimal, teachers need references and motivation in developing these tools, (2) the use of learning devices in the learning process has not been carried out optimally, (3) it is necessary there are efforts to overcome teacher problems by introducing learning tools with the MIKiR approach, (4) low student

problem-solving skills that occur due to a lack of student motivation and attention in the learning process, and (5) there is a need for innovation in the development of learning devices with the MIKiR approach so that students more motivated in finding and solving problems.

## **5. Suggestion**

Based on the results of research that has been carried out by researchers, the researchers provide the following recommendations:

1. By compiling learning tools with the MIKiR approach it can make it easier for teachers to carry out a more structured learning process so as to improve critical thinking skills and student learning outcomes
2. Local governments are expected to be able to provide support both morally and materially through the provision of activities, such as training in the preparation of learning tools, provision of facilities and infrastructure for improving and understanding teachers in developing learning tools so as to increase student motivation and understanding in learning.
3. The school principal provides opportunities for teachers to take part in learning device training with the MIKiR approach so that
4. The MIKiR learning tool is also a learning approach that can be developed in the same subject with different material or in different subjects.

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