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Pifmi Model Practice in Physics Learning

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Abstract

One of the efforts to improve the quality of learning is to develop a PIFMI model (Multi-Interaction Oriented Physics learning) to improve reasoning power that has met the theoretically valid criteria. As follow-up research, it is necessary to test the PIFMI model in the field. Therefore, the purpose of this study is to determine the practicality of the PIFMI model in learning. This research method is development research. The results discussed in this study are focused on the results of field trials which are part of the development of the PIFMI model. From the results of field trials, suggestions were obtained for revising teaching materials, student worksheets, and adding activities to the PIFMI model syntax. The results of the expanded trial showed that the teacher and student assessments of the PIFMI model had met the practical criteria, and were practically used by teachers in managing and implementing learning, as well as being able to actively involve students during learning. In addition, the advantages of the PIFMI model obtained in learning are that it can increase interactions between teachers and students, students and their friends, students with media/learning resources, students with their groups, and groups with other groups, and make learning centered on participants. students, as well as being able to improve students' reasoning power and learning outcomes.

Keywords
practicality; PIFMI model; model trial

I. Introduction

Learning is a process of interaction between students and educators as well as learning resources in the learning environment, where the interaction created must be able to create an interactive, inspiring, fun, challenging, and motivating atmosphere for students to participate actively so that students can obtain learning goals according to what expected (Wahyuni, 2014:105). Interaction in learning is a reciprocal interaction that does not occur by itself but must be created by teachers and students.

The learning process at the junior high school level or equivalent needs to be designed in such a way that students can actively construct concepts, laws or principles through the stages of observing (to identify or find problems), formulate problems, propose or communicate concepts, laws or principles that found. Therefore, learning science physics needs to be directed to encourage students to find out from various sources through observation and not just being told.

Science Physics lessons are not rote lessons but subjects that are more demanding on the ability of concepts and even the application of these concepts. Therefore, the ability to understand concepts in science physics learning is an absolute prerequisite in achieving student success. However, in reality, Physics Science subjects are generally feared and disliked by students, because in addition to mastering abstract Physics Science concepts, they must also master Physics Science. This means that a student with weak mathematical abilities will automatically have difficulty in understanding Physics Science, because the completion of Physics Science questions is done through a mathematical approach. As a result, the expected learning objectives become difficult to achieve. In learning, Science Physics is not taught as a vehicle for students to think, but generally teachers only present facts, concepts, and formulas as information, and also do not present them as a vehicle for solving various kinds of problems. This means that Science Physics learning activities are not oriented to the development of students' reasoning power, in that the constructivism theory emphasizes that students' learning constructs their knowledge.

In response to the warning above, learning activities that are oriented towards developing reasoning power and training students' thinking skills for problem solving need to obtain a more balanced proportion. Learning is essentially a cognitive process that has the support of psychomotor functions (Arsani, 2020). Pohan (2020) states that at school, from elementary to secondary school or even college, students undergo, practice, and experience the learning process of various knowledge and skills. This deficiency arises due to the lack of attention of educational personnel printing institutions that pay attention to these skills (Waluyandi, 2020). In other words, it is necessary to develop a learning model that can provide a conducive climate for the development of students' reasoning power. On this basis, the authors are encouraged to develop a learning model that is relevant and significant to the efforts of developing students' reasoning power. The learning model in question is the PIFMI model developed by Karuru (2021) to improve students' reasoning power. The PIFMI model is designed to involve students actively in learning activities through various forms of interaction during the learning process so that students can easily solve physics problems independently. Form The interaction in question is the interaction between teachers and students, students directly with media/learning resources, between individual students and their groups, between groups and other groups. By carrying out these five interactions, it means that the teacher has carried out perfect learning. In addition, the virtue of the PIFMI model is that it makes it easier for teachers to determine learning methods or approaches and makes it easier for teachers to design learning strategies so that learning can improve students' reasoning power. During the learning process, students are actively involved in studying the material or solving problems and making decisions according to their own language. The PIFMI model was also developed as an alternative to answer the wishes of teachers in junior high schools in designing a model according to the learning conditions of students, namely a model that is able to combine several forms of interaction in science physics learning.

The PIFMI model has a priority, namely in the learning process students are actively involved in conducting investigations through learning interactions both individually and in groups so as to enable students to achieve the formulated learning objectives. The forms of learning interactions include interactions between teachers and students, students directly with media and learning resources, between individual students and their groups, between groups and other groups.

II. Research Method

Research is development research that is developing a model, namely the PIFMI model. The PIFMI model development procedure consists of 5 (five) phases, namely: (1) initial investigation, (2) design, (3) realization/construction, (4) test, evaluation, and revision, and (5) implementation. The research at the test, evaluation and revision stage consisted of two activities, namely the validation of the PIFMI model by two experts and one practitioner, and a limited trial of the PIFMI model. PIFMI model validation has been carried out in previous research (Karuru, 2021) which shows that the PIFMI model has met the theoretically valid criteria. As a continuation of this research, this research is a field trial of the PIFMI model.

III. Results and Discussion

3.1 Results

Practicality of the PIFMI model is measured from the results of observations on the management of the learning model, the implementation of the learning model in the classroom, student activities, and teacher and student responses to the PIFMI model. The results of the analysis of learning model management data, implementation of learning models, student activities, teacher response data, and student response data are described as follows.

a. PIFMI Model Implementation

The results of the data analysis of the implementation of the PIFMI Model were observed by two observers using the learning model implementation sheet. The results of the data analysis of the implementation of the learning model are presented in Table 1 below.

Table 1. Learning Implementation Data

Phase	Aspects Observed	Score/Meeting						Average	Category
		P1	P2	P3	P4	P5	P6		
1	Delivering goals and motivating students	1.83	1.92	2.00	2.00	2.00	2.00	1.97	Completely implemented
2	Orientation on developing students' reasoning power	1.88	2.00	2.00	2.00	2.00	2.00	1.98	Completely implemented
3	Provide stimulation or experiment/experiment	1.83	1.83	2.00	2.00	2.00	2.00	1.94	Completely implemented
4	Formulate tasks through various forms of interaction	1.83	1.67	2.00	2.00	2.00	2.00	1.92	Completely implemented
5	Reasoning	1.80	1.90	2.00	2.00	2.00	2.00	1.95	Completely implemented
6	Evaluation	2.00	2.00	2.00	2.00	2.00	2.00	2.00	Completely implemented
Average		1.86	1.89	2.00	2.00	2.00	2.00	1.96	Completely implemented

Based on Table 1, it can be seen that from 6 aspects of observation, observers gave an assessment that all phases of learning were carried out entirely with scores ranging from 1.92 to 2.00 with the category being carried out entirely. Thus, it can be concluded that the

learning model developed, namely the PIFMI model, is practically implemented by the teacher with the degree of implementation being in the fully implemented category.

b. Learning Management

The results of data analysis on the teacher's ability to manage the PIFMI model were observed by two observers using the learning management observation sheet. The number of items observed on the management of the learning model at each meeting were 27 items so that the ideal minimum score was 27, the ideal maximum score was 108, the ideal average score was 67.5, and the ideal standard deviation was 13.5. The results of the learning management data analysis are presented in Table 2 below.

Table 2. Learning Management Data

No	Meeting	Average Score	Category
1	I	76	Well
2	II	83	Well
3	III	88	Very well
4	IV	93	Very well
5	V	98	Very well
6	VI	102	Very well
Actual Average Score		89.75	Very well
Ideal Average Score		67.5	
Ideal Standard Deviation		13.5	

Table 2 above shows that the actual average score for each meeting when converted into a categorization table of the teacher's ability to manage the learning model is classified as good and very good. While the actual average score for the eight meetings was 89.75 with a very good category. Thus, it can be concluded that the learning model developed is practically used by teachers in managing the PIFMI Model with an actual average score of 94.

c. Student Activities

Data on student activities during the learning process was observed by two observers using student activity instruments. The results of data analysis on student activity in learning with the PIFMI model in this trial are presented in Table 3 below.

Table 3. The results of the analysis of student activities

No	Aspects Observed	Percentage/meeting						Average
		1	2	3	4	5	6	
1	Listen and record teacher explanations.	14.3	10.7	9.9	9.6	8.9	7.8	9.6
2	Answer the teacher's questions / propose ideas.	6.5	7.0	7.0	7.0	7.0	7.0	7.0
3	Answer a friend's question or come up with an idea.	7.6	7.0	7.6	7.6	7.6	7.6	7.5
4	Form a study group.	0	0	0	0	0	0	0.0
5	Using learning	10.4	10.7	10.7	10.7	10.7	11.2	10.8

	tools/media/resources in learning activities.							
6	Work together to discuss questions/problems.	17.6	15.4	15.6	15.6	16.4	16.4	16.3
7	Collaborate to carry out experiments/experiments	12.5	18.1	18.0	18.2	18.2	18.8	17.6
8	Collaborate to collect, process, and analyze data	13.0	13.0	13.3	13.5	13.5	13.5	13.4
9	Presenting the results of the discussion	6.3	6.5	6.5	6.5	6.5	6.5	6.5
10	Responding to the results of group discussions	5.0	4.8	4.7	4.4	4.4	4.4	4.6
11	Summarize the material.	6.8	6.8	6.8	6.8	6.8	6.8	6.8

Aspects of activities that are not included in the involvement are listening and taking notes on the teacher's explanations and forming study groups. The results of data analysis as shown in Table 7 above show that the average score of student activity at each meeting is > 85% or is in the very active category. While the average score for six meetings is 90.4% or is in the very active category. Thus it can be concluded that the PIFMI model developed practically involves students actively so that learning with the PIFMI model is centered on students.

d. Teacher's Response

The teacher's assessment of the practicality of the PIFMI model in learning is measured from the lesson plans, LKPD, teaching materials, learning activities, and evaluations. The results of data analysis on teacher assessment questionnaires about the practicality of the learning model developed are presented in Table 4.

Table 4. Data from the Teacher's Assessment of the Learning Model

No	Rated aspect	Rating Score		Average	Category
		P1	P2		
1	RPP	15	16	15.5	Very interesting
2	LKPD	16	15	15.5	Very interesting
3	Teaching Material	14	15	14.5	Very interesting
4	Learning Activities	23	23	23	Very interesting
5	Evaluation	8	8	8	Very interesting
Average Score		76	77	76.5	Very interesting

The data in Table 8 above shows that the average score of lesson plans is 15.5 with a very interesting category, LKPD is 15.5 in a very interesting category, teaching materials are 14.5 in a very interesting category, learning activities are 23 with a very interesting category. very interesting and an evaluation of 8 with a very interesting category. In general, the average score of the teacher's assessment of learning tools and activities is 76.5 with a very interesting category. Thus, it can be concluded that the teacher's assessment of the learning model developed is practically used in learning with a very interesting category.

e. Student Response

Students' assessment of the practicality of the PIFMI Model is measured from teaching materials, learning activities, evaluation, language, and the benefits of applying the PIFMI

Model in science learning physics. The results of data analysis on students' assessment of the practicality of the PIFMI model in learning are presented in Table 5 below.

Table 5. Data on the results of student assessment of the learning model

No	Rated aspect	Average Score Rating	Category
1	Teaching materials	22.5	Very interesting
2	Learning Activities	22.5	Very interesting
3	Evaluation	7.8	Very interesting
4	Language	11.4	Very interesting
5	Benefit	7.8	Very interesting
Average Score		71.9	Very interesting

Table 5 above shows that students' assessment of teaching materials is very interesting with an average score of 22.5, learning activities are classified as very interesting with an average score of 22.5, the evaluation carried out is classified as very interesting with an average score of 7.8, the language used is classified as very interesting with an average score of 11.4, and the benefits of the learning model developed are classified as very interesting with an average score of 7.8. In general, the students' assessment of the developed learning model is very interesting with an average score of 71.9. Thus, it can be concluded that the students' assessment of the developed learning model is practically used in learning with a very interesting category.

3.2 Discussion

The development of the PIFMI model in this study uses a prototyping development procedure according to Nieveen with the criteria for product quality development to be achieved, which include valid, practical, and effective criteria. The results of the development resulted in a learning model, namely the PIFMI model and had met the valid criteria. In the following, the components of the PIFMI model that have been developed in previous studies are presented.

a. PIFMI Model Syntax/Stage

1. Phase 1: Clarify Goals and Motivate Students to Learn

In this phase, in general, the teacher interacts through questions and answers with students and or between other students by using teaching aids/learning media or discussing project assignments at the previous meeting and conveying the objectives and steps of the PIFMI model carried out by teachers and students. during the learning process.

These activities are carried out with the aim of motivating and mentally preparing students to take part in learning. During the results of the field trial of the learning model in schools, namely six meetings, the stages of explaining goals and motivating students to learn can be carried out entirely in all meetings. More clearly, the percentage of implementation of the phase of explaining goals and motivating students to learn can be seen in Table 5 .

2. Phase 2. Orientation on Developing Students' Reasoning Power

In this phase the activity is focused on the interaction of students with learning resources to explore the material and the interaction of teachers with students through the presentation of material presented through power points. At this stage students are required to understand the material that has been studied which can be used for discussion or problem

solving. Based on Table 5 , it can be explained that in general phase 2, namely the orientation on developing students' reasoning power from the whole meeting, can be carried out entirely.

3. Phase 3 Provide Stimulation or Experiments/Experiments

In general, this phase emphasizes multi-interaction activities such as interactions between teachers and students, students and other students, students and their groups supported by the use of learning tools/resources such as LKPD and learning tools/media. Therefore, the expected result of this phase is through multi-interaction activities, students are able to carry out experimental activities so that all questions/problems given through LKPD can be answered properly. In accordance with Table 13 , it can be seen that the application of the learning model for the phase of providing stimulation or experiments/experiments for six meetings has been carried out entirely.

4. Phase 4 Formulate Tasks through Various Forms of Interaction

In this phase, the learning process is focused on multi-interaction activities, both collecting information through experiments and discussing questions in the LKPD according to the results of the experiment and making reports on the results of the experiment. This is intended to increase students' understanding of the material being studied. In accordance with Table 13 , it can be seen that overall the activities of formulating tasks through various forms of interaction carried out for six meetings have been carried out entirely with an average score of 1.92.

5. Phase 5 Reasoning

Learning activities in this phase begin with multi-interaction activities between teachers and students and students and their groups through group discussions in processing information related to the material being studied, especially the questions presented in the LKPD. In addition, students also interact with each other through the presentation of the results of the discussion through class discussions. Then proceed with the development of the reasoning power of students by asking questions of reasoning power related to the material that has been discussed. The emphasis of this reasoning phase is to develop the reasoning power of students so that they have high absorption abilities and are able to quickly solve the problems they face. Based on the data from Table, it can be seen that from the six meetings of this reasoning phase, all activities have been carried out with an average score of 1.95.

6. Phase 6 Evaluation

In this evaluation phase, the activities carried out are two-way interaction activities by which the teacher and students reflect or evaluate the learning process of students. This phase helps students to reflect on the knowledge and skills they have acquired, the learning strategies that students use, and the contribution of students to group learning. Based on the evaluation phase data as shown in Table, it can be seen that in general it has been implemented entirely with an average score of 2.00.

The picture above is based on the theory of constructivism by Vigotzky called social constructivism. There are two important concepts in Vigotzky's theory (Slavin, 2008:60), namely the *Zone of Proximal Development* and *sacffolding* . Vygotsky believes that learning occurs when children work or handle tasks that have not been learned but those tasks are in the *zone of proximal development* . While *scaffolding* is the provision of some assistance to students during the early stages of learning, then reducing assistance and providing opportunities for students to take on greater responsibilities after they can do it (Slavin, 2008: 61).

b. PIFMI Model Social System

The social system developed in the PIFMI model includes the roles and relationships of students and teachers in detail at each phase of learning. The social system in the phase of explaining goals and motivating students is highly structured and controlled by the teacher. In this phase, the teacher's role is as a motivator for the importance of learning activities for students. The orientation phase on the development of reasoning power , students play a major role in learning activities, especially in exploring material by reading teaching materials on the learning resources that have been provided. Meanwhile, the teacher plays a role in presenting and guiding students to understand the teaching material. In the stimulus (experimental) phase, the teacher's role as a mediator guides each group in conducting experiments and answering questions, while cooperative students in their groups carry out activities such as answering questions and conducting experiments. The phase of formulating tasks through various forms of interaction, the teacher acts as a facilitator guiding students to collect information, answer questions, and guide students to make reports on experimental results. Likewise for the reasoning phase, the teacher's role is as a facilitator and guides students both individually and in groups in processing information and presenting the results of discussions through class discussions. And at the end of the meeting the teacher presents a reasoning question to be answered through class discussion. These problems are related to the material that has been presented.

Based on the analysis of the implementation of the PIFMI model , it is known that from the whole learning (six meetings) the teacher has acted as a facilitator and mentor, namely by conditioning students to learn and developing their reasoning power, helping students to define and organize learning tasks, and encouraging students to interact to gather information to obtain problem solving or answer questions. In addition, the teacher also acts as an evaluator of the implementation of the entire learning process.

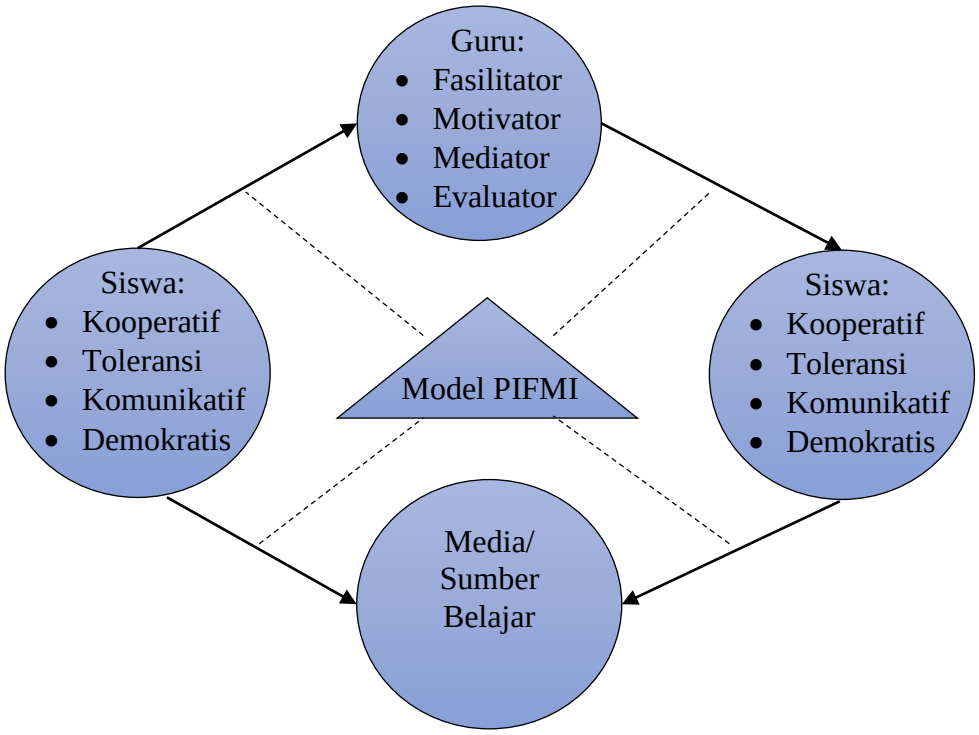
c. PIFMI Model Reaction Principle

The principle of reaction relates to the teacher's role in learning. In learning with the PIFMI model the teacher plays a role in directing and emphasizing the process of gathering information and solving problems (answering questions), as well as providing feedback on the results of problem solving/student questions. The role of the teacher to evaluate and guide students during the learning process has been carried out for six meetings at school. This can clearly be seen in the results of the analysis of the implementation of the PIFMI model in Table 5.

d. PIFMI Model Support System

The support system needed to be able to implement the PIFMI model is a Student Worksheet (LKPD) to support the PIFMI model, as well as several learning tools/media (eg thermometer) in the implementation of Physics Science learning for unit material and measurements, temperature and its changes and heat and transfer. In the implementation of the PIFMI model in schools, a support system in the form of LKPD which stimulates the ability of students to answer questions and learning tools/media to develop their reasoning power are available in all learning meetings.

The results achieved from the PIFMI model on aspects of the social system, reaction principles, and support systems can be illustrated in Figure 1 below:



Description: ------- : Facilitator : Social Relations

Figure 1. *Social relations in Learning with the PIFMI Model*

e. Instructional Impact and Accompaniment Impact of the PIFMI Model

Direct objectives include: the problem solving process, mastery of basic competencies and learning objectives, as well as the ability to construct knowledge. The problem-solving process can be demonstrated through the implementation of learning based on the results of observations on the implementation of the PIFMI model in the classroom. While the achievement of basic competencies and learning objectives can be shown from the learning outcomes of students. Indirect goals include: the ability to interact, cooperative skills, self-confidence, self-esteem, and self-control.

The PIFMI model developed in this research has met the valid criteria, and has been revised according to suggestions from validators or experts.

f. The Practicality of the Multi-Interaction Oriented Physics Science Learning Model

Practicality in development research according to Vanden Akker (1999:10) states: *Practically refers to the extent that the user (or the expert) considers the intervention as appealing ang usable in normal conditions."* This means that practicality refers to the degree that users (or other experts) consider an intervention to be usable and preferable under normal conditions. To measure the practicality of developing learning models, Nieveen (1999) explains that the model is said to be practical if experts and practitioners state that theoretically the model can be applied in the field and the level of implementation of the model is in the "good" category, and can be seen from the considerations of teachers and students. that the material can be used by teachers and students.

The learning model is said to be practical if it meets the practical requirements. The practical requirements of a learning model can be seen from the theoretical and empirical practicality. Practical theoretically, if the validator states theoretically that the learning model developed is theoretically practical. And the learning model is said to be practical empirically, it can be measured using field instruments, namely (1) the level of interest of the

teacher using the developed learning model, (2) the level of ease of students absorbing teaching material using the developed learning model, (3) the level of teacher ability to manage the learning model developed is 0, and (4) the level of implementation of the learning model.

g. Practicality of Teacher Response

To find out the practicality of a learning model that has met the valid criteria, a field trial was conducted. In this study, field trials were conducted by implementing the PIFMI model on seventh grade students of SMP Negeri 3 Mengkendek, Tana Toraja Regency.

Based on the results of the questionnaire on the practicality assessment of two teachers as presented in Table 8 , it can be seen that the results of the PIFMI model trial can be categorized as very interesting with an average score of 76.5. Thus it can be said that based on the assessment of the user (teacher) the PIFMI model developed has met the practical criteria, although in practice the teacher still encounters some difficulties in being able to carry out the steps of the PIFMI model in the classroom.

h. Practicality of Student Response

Based on the results of the practicality assessment of the student responses as presented in Table 9 , it can be seen that the overall practicality of the PIFMI model has reached the practical criteria with an average score of 71.9. In addition, students' assessments of each assessment indicator such as teaching materials, learning activities, evaluations, language, and benefits all stated that they were very interesting with the practicality category being practical.

i. Practicality of Learning Model Management

In addition to teacher and student assessments of the practicality of the learning model developed, the practicality of the learning model is also measured by the management of teachers in implementing the PIFMI model . Based on the results of field trials of the PIFMI model in class VIIA students of SMP Negeri 3 Mengkendek, it can be recorded that the teacher's ability to manage learning is very good with an actual score of 89.75. Thus it can be said that the PIFMI model developed is practically used by teachers in managing learning.

Field trial data analysis shows that the PIFMI model is practical to use, the classroom atmosphere is often not conducive, especially during experimental activities. This is because students are not used to doing experiments and the division of tasks is not clear when students conduct experiments and discussions.

j. The Practicality of the Implementation of the PIFMI Model

PIFMI model can also be measured from the implementation of the learning model implemented in the learning process. Based on the results of the PIFMI model field trials on class VIIA students of SMP Negeri 3 Mengkendek as presented in Table 5 , it was found that the phases of the PIFMI model activities were carried out entirely. In the phase of conveying goals and motivating students, the teacher is able to carry out learning activities which include greeting, greeting students, checking student attendance, motivating students or discussing assignments, information about the PIFMI model strategy flow , and explaining the learning objectives to be achieved. In the orientation phase on the development of students' reasoning power, the teacher is able to carry out learning activities which include presenting the subject matter through three-way interaction, identifying the students' reasoning power, and organizing heterogeneous students consisting of 6 people in each study group. The material presented is quite clear, even though the teacher's specialization is a science teacher.

The stimulus or experiment phase is carried out entirely by the teacher. Learning activities carried out in this phase are asking questions to students to be answered through multiple interactions and conducting experiments which are discussed through group work. The form of questions and experimental steps are described through the LKPD. This method will help students gain valuable learning experiences in an effort to develop reasoning power through thought processes both individually and in groups so that students can find their own concepts according to the results obtained during learning.

While the reasoning phase has been carried out entirely by the teacher. Activities carried out in this phase include processing and analyzing data by using their reasoning power according to the data collected from the experiment. Furthermore, students make experimental reports and draw conclusions that are carried out through multiple interactions. Then several groups present the results of the discussion through class discussion. At the end of this activity, the teacher trains students to develop their reasoning power through questions or reasoning questions to be answered related to the material that has been discussed. As the end of this implementation is the evaluation phase. This phase has also been fully implemented. Activities carried out in this phase include each group reflecting and evaluating the material, assignments, and learning activities carried out. This activity is focused on drawing conclusions or summarizing the material, providing an evaluation (written test), and ending with a follow-up in the form of giving assignments to be done at home individually or in groups.

k. Practicality of Student Activities

Field trials as shown in Table can be said that the PIFMI model can involve students during the learning process through various forms of interaction such as listening and recording teacher explanations, answering teacher questions / expressing ideas, using tools / media learning resources in learning activities, working together to discuss questions/problems , collaborating to conduct experiments/experiments , collaborating to collect, process, and analyze data , present discussion results , respond to group discussion results , and summarize material . The whole interaction in the learning is an emphasis on interaction in the PIFMI model .

The activity of listening and taking notes on the teacher's explanation is a learning activity that is fully carried out by the teacher and students are passive. In this activity, students listen to the learning activities that will be carried out, record learning objectives and record teacher explanations about important concepts. Activities to answer questions from teachers and friends or express ideas are carried out by students in learning such as answering teacher questions when displaying various pictures related to the material through power points at the beginning of learning, group discussions, answering reasoning questions displayed by teachers through power points and drawing conclusions. One example of multi-interaction activities that occur in learning is as follows.

Figure 2. *Teachers and Students Interact with Each Other to Discuss Questions*

Figure 2 is the activity of students in reading and exploring the material they know, discussing questions in the LKPD, conducting experiments, and processing and analyzing experimental data and drawing conclusions. In the picture, it can be seen that the learning atmosphere is very conducive and runs interactively so that the students in the group have no difficulty in conducting experiments and solving problems.

The activity of students presenting the results of the discussion is carried out with each group presenting the results of group work then being responded to by other groups, and if there are answers that are not correct, then the teacher and students complete the answers. In this activity, all students feel free or there is no pressure in developing their reasoning so that all the problems answered in the LKPD have been answered and can be understood by all students.

IV. Conclusion

The results showed that the practicality of the PIFMI model was based on (1) the teacher's assessment had reached the practical criteria, (2) the student's assessment had reached the practical criteria, (3) the results of observations of the PIFMI model management were practically used by teachers in managing learning . , (4) the results of observations of the implementation of the PIFMI model are practically carried out by teachers with the degree of implementation being in the fully implemented category , and (5) the activities of students have reached the practicality criteria with an active percentage of 90.4%.

The next research is to test the practicality of the model in a wider class. In addition, the next research that can be done is to test the effectiveness of the PIFMI model in improving students' reasoning power and learning outcomes.

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