

Teachers' Understanding of Developing Independent Curriculum Teaching Modules for Mathematics Teachers in Middle Schools in Tanjungpinang City

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Abstract: Curriculum changes that are currently occurring are due to the needs and demands that exist in the world. The implementation of an independent curriculum gives teachers more freedom to use a variety of learning tools that are tailored to the needs and interests of their students. The research explores teachers' Understanding in compiling independent curriculum teaching modules, especially in mathematics learning. This research uses a descriptive quantitative approach with survey methods. This research was carried out in July 2023, with the subject being mathematics teachers at junior high schools in Tanjungpinang City. The data collection used in this research is a questionnaire instrument. The data analysis used in this research is descriptive analysis. The results of research on teachers' understandings in compiling teaching modules show that 73.3% of teachers already understand the components of teaching modules, 73.3% of teachers can adapt and pay attention to students' initial abilities, 80% pay attention to learning outcomes, teachers also optimize infrastructure that supports learning. However, teacher understanding needs to be developed, such as model selection understandings, learning strategies and techniques, the concept of meaningfulness, and selecting the right instrument to prepare learning assessments.

1 Introduction

Curriculum is an important milestone in the world of education. The implementation of structured education is contained in the curriculum. However, it cannot be denied that the curriculum will change to adapt to the needs and demands of the world. Therefore, curriculum reform ensures that the needs for abilities, understandings, and attitudes toward students align with the 21st century [1]. In this era of disruption, many understandings are needed. Globalization encourages individuals to be alert and responsive to fast-paced changes. This was triggered by social and economic developments in the 21st century, which caused fundamental and not just incremental changes in education. Globalization refers to a complex of technological and economic factors, including the global spread of communications technology networks and the global integration of product and labor markets [2].

Optimal curriculum implementation is needed to clearly articulate the main objectives in forming and encouraging visionary and flexible learning that enables teachers to meet the needs of students now and in the future by providing full support to students in implementing and sustaining change. [3]. This curriculum aims to develop the potential of students from various fields, both academic and non-academic [4].

Various curriculum changes occurred in Indonesia starting from 1947 until the latest was the independent curriculum. This change was made to answer the expectations and challenges needed from pre-school to tertiary education levels. Teachers must follow changes and developments in the curriculum that are being implemented nationally which can be applied in their

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respective units. The teacher's task is to continue to innovate to provide various possibilities for ideas, perceptions and beliefs that the learning carried out is beneficial for their students [5]. Looking at data in the field shows that teachers' ability to implement the implemented curriculum is still low. This states that teachers in terms of pedagogical and professional competence are still not good [6]. Based on information obtained from the Tanjungpinang City Middle School Mathematics Subject Teacher Council Chair, most teachers need help understanding creating learning modules. Mathematics teachers only use modules that come from the government.

Currently, the implementation of the independent curriculum has been launched by the minister of education and culture, where the independent curriculum provides diverse learning, students have sufficient time to deepen the concepts and competencies studied [7]. By implementing an independent curriculum, teachers are given the freedom to use a variety of learning tools that are tailored to the needs and interests of their students. In efforts to prepare for the need for implementing an independent curriculum, teachers need to develop supporting teaching tools.

This can be done by compiling teaching modules. A teaching module is a document that contains objectives, steps and learning media, as well as assessments required in one unit/topic based on the flow of learning objectives. [8]. The preparation of teaching modules has an important role, including the realization of a learning process that favors students [9]. The Importance of Teaching Modules Teachers should not teach without a plan. However, learning planning, which should be used as a guide in carrying out its duties so that the learning process is more focused, efficient and effective, is sometimes ignored by some teachers. As a result, the learning process that takes place in the classroom sometimes reduces the meaning of the learning objectives to be achieved [10].

Based on the description above, it can be concluded that in compiling teaching modules teachers need to pay attention to various aspects. The teaching modules developed must be in accordance with several indicators. Starting from the format prepared, characteristics of students, meaningfulness in learning, reference sources used and many others. Therefore, this research is focused on describing teachers' understandings in compiling teaching modules, especially in junior high school mathematics education in Tanjungpinang City.

2 Method

This research uses a descriptive quantitative approach with a survey method. This research was carried out in July 2023 with the subject being junior high school mathematics teachers in Tanjungpinang City. The research aims to explore teachers' understandings in compiling independent curriculum teaching modules, especially in mathematics learning. The respondents in this study were teachers from the subject teachers' conference of junior high school mathematics teachers throughout Tanjungpinang City, totaling 42 mathematics teachers. The data collection used in this research was a questionnaire instrument. This questionnaire was developed based on a [11] grid that has been prepared by providing questions which can be shown in Table 1 below.

Table 1 Indicators for Preparing Teaching Modules

No	Question Indicator	Item Number
1	Understanding of teaching module components	1
2	Students' initial abilities	2,4,5
3	Development of strengthening the profile of Pancasila students	3
4	Learning Outcomes (CP) as targeted competencies	10,11,12
5	Selection of Facilities and Infrastructure to Support Learning	19
6	Selection of various approaches, models, methods, strategies and techniques	6, 7,8
7	Meaningfulness in learning	9
8	Teaching module assessment instrument	13,14,15

No	Question Indicator	Item Number
9	Reference sources used in compiling teaching modules	16
10	Implementation of Teaching Module Preparation	20
11	Natural obstacles when preparing teaching modules	17,18

The results obtained were analyzed and interpreted with reference to the criteria shown in Table 2 below.

Table 2Criteria for Teacher Understandings in Preparing Teaching Modules

Percentage	Criteria
$0\% < x \leq 25\%$	Strongly disagree
$25\% < x \leq 50\%$	Don't agree
$50\% < x \leq 75\%$	Agree
$75\% < x \leq 100\%$	Strongly agree

[12]

The data analysis used in this research is descriptive analysis. This analysis was carried out by explaining in detail the data that had been obtained by displaying the percentage of answers to each question using representations in the form of diagrams and tables [13].

3 Results and Discussion

This research was carried out by administering a questionnaire via *Google Form* . The research results can be presented as follows.

3.1 Understanding Teaching Module Components

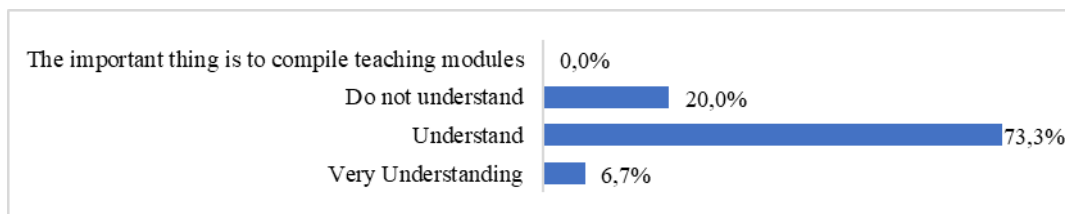


Figure 1Understandings for Understanding Teaching Module Components

The results of teacher Understanding acquisition in understanding the components of teaching modules are important for teachers before preparing teaching modules. Components are the first step that must be understood. This shows that the teacher already understands the components contained in the teaching module. This can be seen from the response of 73.3% of teachers who understand the components of the teaching module. Based on [14]the teaching module component consists of 3 main components, namely general information, core components and attachments. The teacher must understand these 3 components to prepare teaching modules. In line with [15]states that teachers need to study existing content in learning planning, this is important because it will be a consideration in the teaching process, as well as choosing good instructional methods in learning.

3.2 Understandings of Paying Attention to Students' Initial Abilities

The teacher prepares the teaching module by paying attention to the condition of the initial abilities of the students who will carry out the learning. This can be seen by the teacher in preparing the condition by observing the students' initial abilities. This is shown in Figure 2.

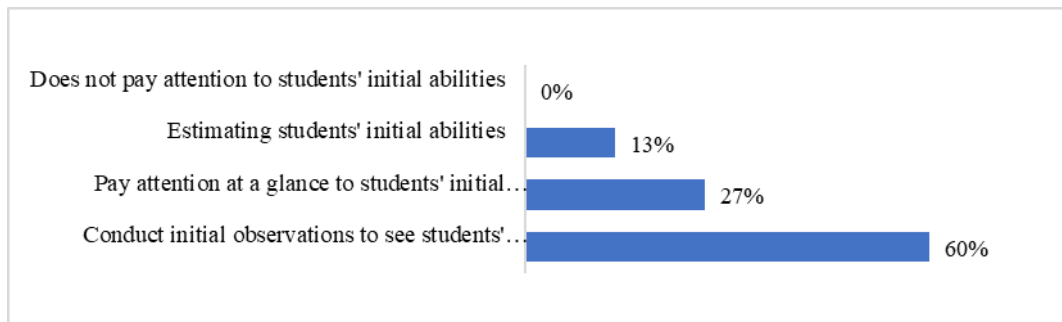


Figure 2 Understandings of Paying Attention to Students' Initial Abilities

Based on Figure 2, it can be seen that 60% of teachers in developing teaching modules made adjustments by taking into account students' abilities. 27% estimated students' abilities and 13% only did so with a glance at students' abilities. This can be an experience for teachers when compiling teaching modules, namely by paying attention to the abilities and characteristics of students so that they are able to meet their learning needs. The initial abilities of students are very important for educators to be able to deliver lessons to students appropriately, not too difficult and not too easy. Students' initial competencies are important for the smooth running of learning activities [16].

3.3 Development Understandings Strengthening Pancasila Student Profiles

In the development of strengthening the profile of Pancasila students carried out by teachers in developing teaching modules, the percentages can be seen in the following figure 3.

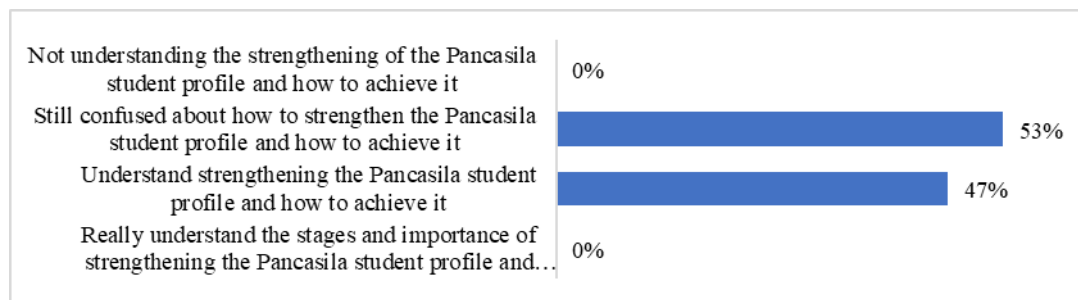


Figure 3 Development Understandings Strengthening Pancasila Student Profiles

In this case, teachers need to develop an understanding of the profile of Pancasila students. It is still proven that there is a lack of teachers in understanding the preparation of Pancasila student profiles. It can be seen that 53% of teachers still feel confused in compiling Pancasila student profiles. 47% less than half of the teachers can compile a Pancasila student profile. Mastery of the Pancasila student profile needs to be mastered by teachers. This Pancasila student profile builds character and abilities that are reflected in the lives of students through the culture that exists in the

education unit. Strengthening the Pancasila student profile provides character strengthening as well as a means that encourages learning to instill Pancasila values.

3.4 Learning Achievement Understandings (CP) as Targeted Competencies

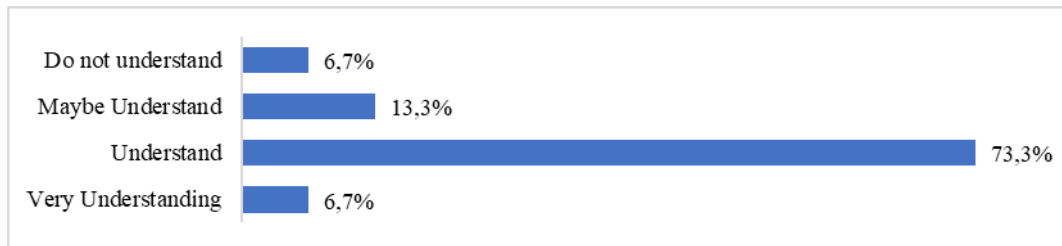


Figure 4 Learning Achievement (CP) Understandings as Targeted Competencies

Learning activities are said to be successful if competency achievements can be achieved. Based on the picture above, it can be seen that the teachers' understandings in compiling teaching modules show that 73,3% of teachers have paid attention to the targeted learning outcomes. Teachers develop learning so that learning outcomes can be achieved. By paying attention to every aspect of each learning achievement in each phase. However, there are still teachers who only glance at learning outcomes, namely around 6.7%.

3.5 Understandings in Selection of Facilities and Infrastructure to Support Learning

The next aspect can be seen from the teacher's preparation in compiling teaching modules by considering the existing infrastructure at the school. Seen in Figure. below shows that 47% of teachers optimize the availability of existing facilities and infrastructure in the school environment for the learning process, 40% of teachers look for the facilities and infrastructure needed for the learning process and the remaining 13% only complement existing facilities and infrastructure. This can be seen that facilities are an inseparable part of learning. Means of being a translator or tool to facilitate the delivery of material. Through the facilities and infrastructure, teachers and students carry out learning very well. This is in line with [17] that having complete facilities and infrastructure for both media needs and learning tools will help the teaching and learning process run smoothly. The same thing was also expressed by [18] Schools need to optimize existing facilities and infrastructure to support the learning process, this is important to support the achievement of learning success.

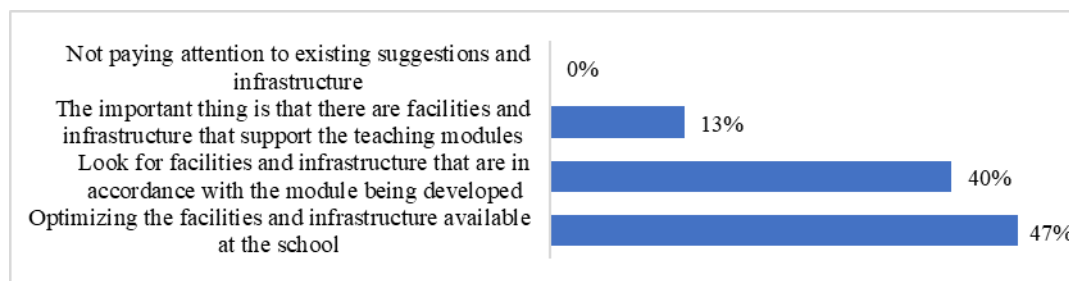


Figure 5 Understandings for Selection of Facilities and Infrastructure to Support Learning

When preparing teaching modules, teachers pay attention to the availability of infrastructure suggestions in the environment to achieve good learning. Environmental conditions and availability of materials are taken into consideration by teachers in compiling teaching modules.

3.6 Understandings in Selection of Various Approaches, Models, Methods, Strategies and Learning Techniques

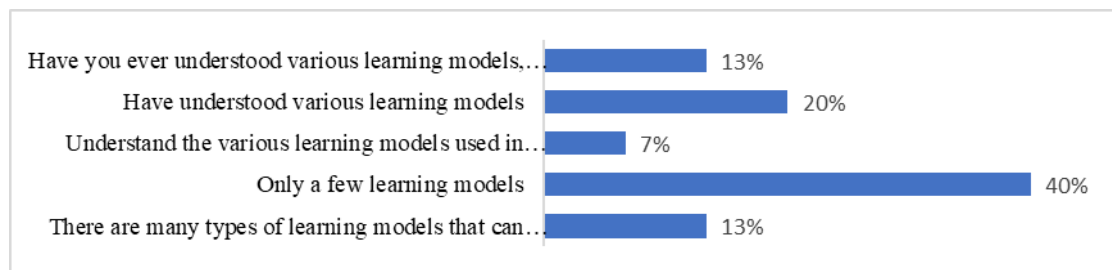


Figure 6 Understandings for Selection of Various Approaches, Models, Methods, Strategies and Learning Techniques

From the picture above, it can be seen that teachers in selecting and understanding learning models, strategies and techniques are still lacking. It can be seen that 40% of teachers are only somewhat familiar with learning models, 20% have studied and 7% understand the various learning models that can be applied in the independent curriculum. It is very concerning that understanding learning models that suit your needs will impact learning success. Teachers need to understand and develop various learning models that suit the needs of students and the school environment.

3.7 Understandings for Preparing Concepts of Meaningfulness in Learning

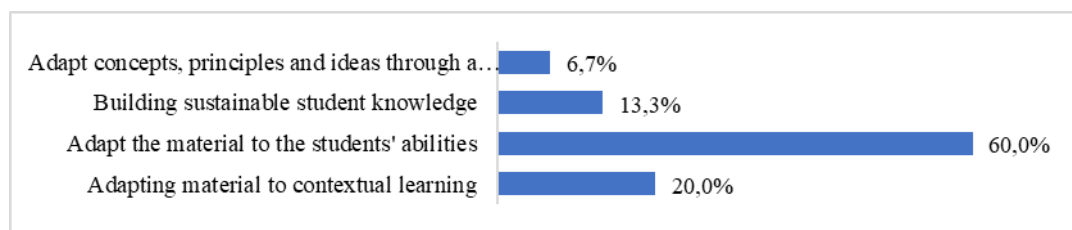


Figure 7 Understandings for Preparing Concepts of Meaningfulness in Learning

Modules that are prepared so that they can provide good benefits, teachers also need to prepare them by paying attention to the meaningfulness of learning. These results can be seen from the fact that teachers in preparing teaching modules still suit the students' abilities, namely 60%. The second is by adapting the material to the contextual learning experienced by students, amounting to 20%. It can be seen that teachers in compiling teaching modules pay attention to students' knowledge on an ongoing basis and the rest adjust the concepts to the deductive learning process. Learning carried out by teachers will be more meaningful if it is adapted to the abilities and needs of students. [19] stated that through meaningful activities students are able to connect learning activities with the interests and needs needed in environmental life both at home and in the community.

3.8 Understandings in Preparing Teaching Module Assessment Instruments

In the assessment aspect, there are still teachers who carry out assessments using test assessments, this can be seen in the figure below

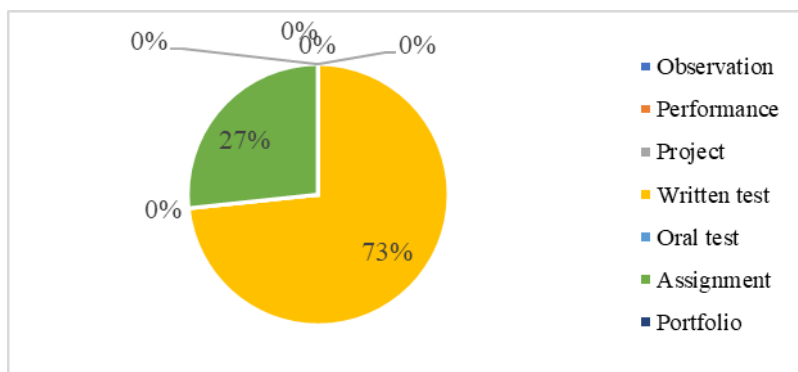


Figure 8 Understandings for Preparing Teaching Module Assessment Instruments

Based on the figure above, it can be seen that 73% of teachers in preparing assessments still focus on test assessments. The remaining 27% of teachers use assignment assessments. However, there are still many assessments that can be done to determine the success of learning. This is in accordance with research [20] The assessments carried out generally still use multiple choice, true false, matching which is carried out through tests in class with a time limit but does not assess the learning process that has been carried out. In fact, there are various kinds of instruments that can be adapted to the conditions and material being taught. This is in line with the statement [21] that teachers need to be familiar with various types of assessment, so that they are able to provide the right diagnosis of students' difficulties and are also able to determine the right strategy in the learning process. This assessment has a significant influence on learning success.

3.9 Understandings in Using Teaching Module Reference Resources

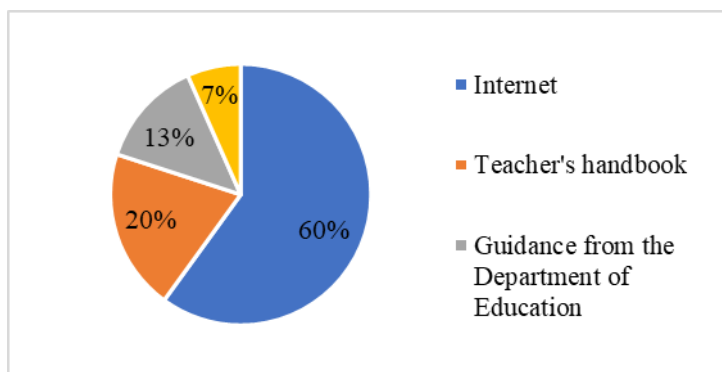


Figure 9 Understandings for Using Teaching Module Reference Sources

In the picture above, it can be seen that 60% of teachers in compiling teaching modules still rely on the teacher's handbook. This shows that teachers must still understand how to develop teaching modules according to school needs. However, the needs of each school are different. This results in teaching modules being structured differently. For this reason, currently, teachers are only focused on meeting learning needs.

3.10 Understandings for Implementing Teaching Module Preparation

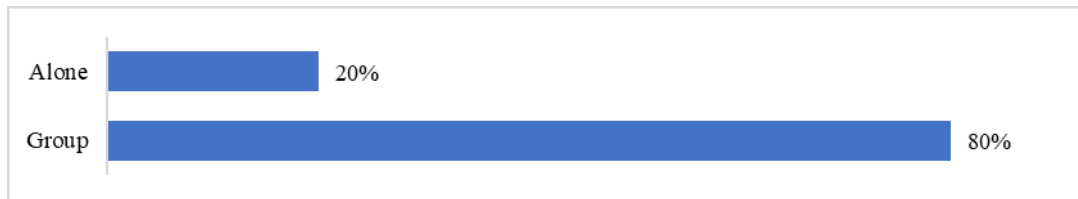


Figure 10 Understandings for Implementing Teaching Module Preparation

Based on the picture above, it can be seen that 80% of teachers prepare teaching modules in groups. 20% of teachers carry out the preparation of teaching modules individually. The preparation of teaching modules is carried out in groups to make it easier for teachers to compile them. If there are obstacles that cannot be understood, the teacher can ask questions in the group. Organizing groups makes it easier to complete teaching modules. Collaboration between teachers is the key to compiling teaching modules. However, what needs to be taken into account is the condition of the students, the suitability of the material to be taught, the state of the school environment and the existing infrastructure.

3.11 Obstacles Experienced When Preparing Teaching Modules

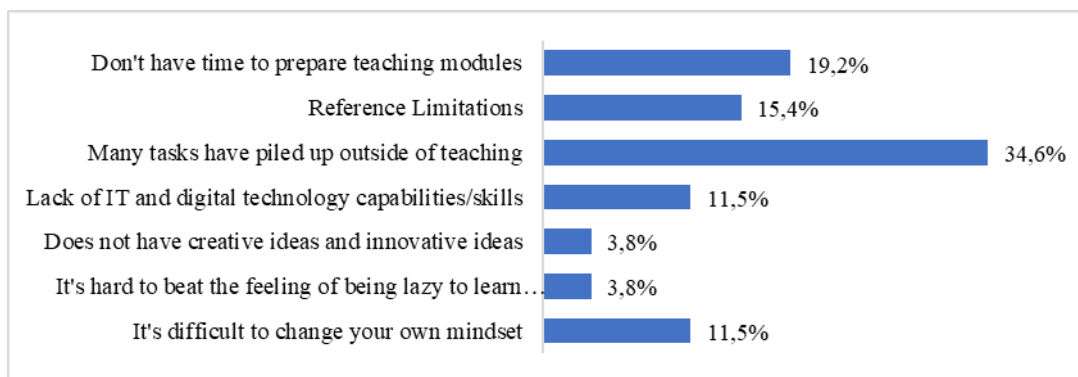


Figure 11 Obstacles experienced when preparing teaching modules

In Figure 11 it can be seen that almost all respondents are hampered by the large number of tasks that have accumulated outside of teaching. This can be seen from 34,6% of respondents. Respondents were also constrained by the lack of time to prepare teaching modules. In fact, this is not an obstacle for teachers in compiling teaching modules, this depends on each individual teacher. Time management becomes important when teachers have to deal with various kinds of activities. Management ability will influence the quality of the learning carried out. Limited references are also something that hinders teachers in compiling teaching modules. This was also revealed in other research [22] one of the factors that causes teachers to lack professionalism is limited time due to being busy with additional tasks outside of teaching hours so that planning makes teachers hampered.

4 Conclusion

Based on research conducted, the teacher's understandings in compiling teaching modules are good, this can be seen from the aspect of understanding the preparation of teaching modules, the teacher's understandings in seeing the characteristics of students, up to the achievement of targeted competencies. However, there are several indicators that need to be improved. Especially in the development of strengthening the Pancasila student profile, understanding various models, strategies that suit needs, as well as variations in the use of learning assessments to make them more objective. The teaching modules developed must be able to answer the needs of students. Don't forget that teachers must be able to face obstacles that arise both personally, such as feeling lazy, motivation to develop innovative learning ideas and concepts, or other obstacles such as additional assignments. Time management needs to be considered in order to create harmony between the teacher's obligations as an educator and the additional tasks given.

Thank you note

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