DEVELOPMENT OF DIFFERENTIATED LEARNING TOOLS AS AN INITIATOR OF INDEPENDENT LEARNING

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Abstract

This research aims to (1) understand the development of differentiated learning tools as initiators of independent learning, (2) assess the feasibility of differentiated learning tools as initiators of independent learning, and (3) determine the effectiveness of learning using differentiated learning tools as initiators of independent learning. The research adopted the Research and Development (R&D) methodology, employing data collection techniques such as documentation, observation, interviews, and questionnaires. The research yielded learning tools in the form of Syllabus (RPS), Lesson Implementation Plan (LKM), authentic evaluation instruments, and instruments for learning styles that are highly suitable according to experts. The effectiveness of the tools was evidenced by significantly high scores with a Sig (2-tailed) value less than 0.05.

Keywords: Differentiated learning tools; independent learning

PENGEMBANGAN PERANGKAT PEMBELAJARAN BERDIFERENSIASI SEBAGAI INISIATOR MERDEKA BELAJAR

Abstrak

Penelitian ini bertujuan untuk (1) Memahami cara mengembangkan perangkat pembelajaran berdiferensiasi sebagai inisiator merdeka belajar, (2) Mengetahui kelayakan perangkat pembelajaran berdiferensiasi sebagai inisiator merdeka belajar, (3) Mengetahui efektivitas pembelajaran menggunakan perangkat pembelajaran berdiferensiasi sebagai inisiator merdeka belajar. Jenis dari penelitian yang dipakai adalah penelitian *Research and Developement* (R&D). Teknik pengumpulan data menggunakan dokumentasi, observasi, wawancara, dan angket. Hasil penelitian perangkat pembelajaran berupa RPS, LKM, instrumen evaluasi autentik, dan instrumen untuk gaya belajar yang sangat layak digunakan menurut ahli serta perangkat efektiv dengan nilai yang sangat signifikan ditandai dengan skor Sig (2-tailed) kurang dari 0,05.

Kata kunci: *Perangkat pembelajaran berdiferensiasi; merdeka belajar*

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INTRODUCTION

The quality of higher education can be seen from the ongoing learning process. Learning in higher education must accommodate all students. Wahdah, N. & Andinia, W. (2017) There are some learners who can learn quickly and successfully and there are also those who are slow and have difficulty learning. Jørgensen, M.T & Lena, B. (2021) Teachers at universities usually meet a group of students who have diverse backgrounds so they have the challenge of having one learning strategy that can be used for all students. Based on interviews with students of Pendidikan Guru Madrasah Ibtidaiyah (PGMI) 1st generation of 2022 It was found that they came from various different backgrounds such as vocational high schools, high schools, Islamic schools with various different concentrations, ranging from arts, culinary arts, management, accounting, science, social sciences and so on. This will make it very difficult to accommodate students if teachers or lecturers use traditional learning strategies such as direct learning. Listiani, I. (2022) Learning should pay attention to the needs of all students and be able to improve their abilities, both those with high and low abilities.

Hasanah, E, et al. (2022) Ideally, learning should help students develop their optimal abilities through various activities. Several teachers in Indonesia are participating in a program to develop a differentiated learning philosophy known as the Pancasila student profile. Learning strategies must accommodate all students' abilities and also be free to learn as is massively promoted in universities. The main strategy that can be used is differentiated learning. Mintz, S. (2016) Differential learning addresses student differences in terms of student interests, preparation and abilities, namely by offering various ways of learning in the classroom. Turner, W.D., et al. (2017) Differential learning is rarely implemented in higher education and is challenging. Turner further found that if learning is applied in higher education, it is a challenging thing for teachers. There has been no implementation of differentiated learning to support independent learning in the PGMI study program. The number of students in each class at PGMI UIN Walisongo includes large classes. Learning usually groups students based on heterogeneous abilities, unable to facilitate all students, while differentiated learning is different because it groups students based on their abilities and assesses students based on ability groups. Therefore, it is necessary to develop differentiated learning tools as an initiator of independent learning in the PGMI study

program.

RESEARCH METHODS

The research procedures used were adapted from Borg and Gall (1983) that is *Research and Developement* (R&D) with ten steps. The development procedure will be taken to the fifth stage, namely revising the main product to create differentiated learning tools. These five steps include:(1) *Research and Information Collection*, (2) *Planning*, (3) *Developing Preliminary Form of Product*, (4) *Preliminary Field Testing*, (5) *Revising Main Product* can be seen in figure 1.
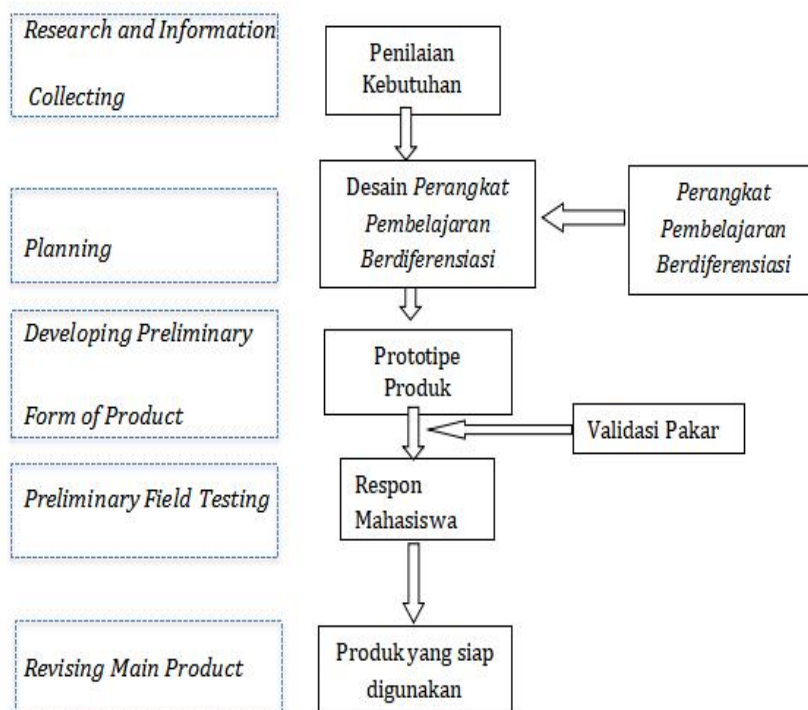
Figure 1. Research Procedure

The research and development procedure in Figure 1 can be explained as follows:

1. *Research and Information Collection*

Differentiated learning tools were developed based on an assessment of existing needs in the field considering that differentiated learning is one way to implement independent learning. The needs assessment will provide a sign as to whether differentiated learning tools are needed in the PGMI study program of UIN Walisongo Semarang. At this stage it was found that the PGMI study program had students who came from various different backgrounds, for example from SMA,

SMK, MA and various majors. This makes it difficult for lecturers or instructors to meet all student needs with regular learning, so differentiated learning can be a solution to accommodate all student needs. Finally, differentiated learning tools can be created to fulfill this.

2. *Planning*

At this stage, the learning device is designed. Apart from that, the design of other instruments such as student worksheets, expert validation sheets, assessment instruments and instruments to identify student learning profiles were also created. The material used is about the digestive system.

3. *Developing Preliminary Form of Product*

Draft learning tools and supporting instruments are created at this stage and then assessed by experts. Products that have been validated receive input and suggestions for improvement and can then be tested on students.

4. *Preliminary Field Testing*

Products that have been completed and have been improved based on validation results are tested on students. At this stage, student responses will be obtained through measuring the effectiveness of learning when using the learning tools developed.

5. *Revising Main Product*

Products that have been tested on a limited basis on students are then improved according to the response obtained. Furthermore, the final product can be used in learning.

The research population was PGMI UIN Walisongo Semester 1 students class of 2023 and the sample was 34 experimental class students and 39 control class students. Samples were taken using purposive sampling technique. Data collection was carried out from September to October 2023. Data was collected using documentation, observation, interviews, questionnaires and tests. Documentation is used as additional data taken when students take part in learning, observations and interviews are used to determine the need for learning tools and the learning process, questionnaires are used to determine the validity of learning tools and tests are used to determine the effectiveness of learning. Data analysis used was Microsoft Excel to process instrument validity data and SPSS for the T test.

RESULTS AND DISCUSSION

This research and development (R&D) aims to develop differentiated learning tools to realize independent learning in the Madrasah Ibtidaiyah Teacher Education (PGMI) study program at UIN Walisongo Semarang in the form of Semester Learning Plans (RPS), authentic evaluation instruments, instruments to identify student learning profiles. , student worksheets and question instruments. Therefore, an R&D model was used to develop the device using the Borg&Gall development model. The development steps used include (1) Research and Information Collection, (2) Planning, (3) Developing Preliminary Form of Product, (4) Preliminary Field Testing, (5) Revising Main Product.

The first procedure is to conduct research and collect information (research and information collecting). In this step, an assessment of the need for learning tools for differentiated learning is carried out. The results of the first procedure include: (1) PGMI students come from various backgrounds at previous levels of education, for example from MA, SMA and SMK, apart from that the focus of concentration at these three levels is also different. (2) it is difficult for lecturers to meet students' learning needs because they have diverse backgrounds and each class has a large number of students. (3) differentiated learning has never been applied to the PGMI study program. (4) Lack of freedom of thought and expression for students in learning.

The results of the needs assessment obtained from the first procedure were investigated for their relevance so that it could be concluded that the learning taking place in the PGMI study program experienced various obstacles that had to be found a way out. Students who come from various backgrounds, large classes, and the lack of freedom of student thinking will make it difficult for lecturers to choose the right learning strategy so that all students' learning needs are met. Therefore, solutions are needed to the problems described previously so that students with various backgrounds receive the same services.

The second procedure is planning or planning is used to determine solutions to problems obtained in the first development step. The solution offered in this research is the development of differentiated learning tools that can be used as initiators of independent learning in the PGMI study program. This device is designed to be used with differentiated learning because this model has the potential to provide freedom for

students to think and express, differentiated learning is designed based on their learning profile. The learning profiles that will be used are kinesthetic, auditory and visual learning profiles.

The third procedure in the development model carried out is developing a preliminary form of product or what can be called developing an initial draft of the product. The initial products created consisted of learning tools in the form of RPS, authentic evaluation instruments, instruments to identify student learning profiles, student worksheets and question instruments. Simultaneously with the initial product, an instrument was also developed to assess whether the device was theoretically valid and could be used for research. The learning tools developed are focused on basic science concepts with the theme of the digestive system.

The fourth procedure is to use the results of the revision in accordance with expert advice in the third procedure and then use it in learning during lectures. The fifth procedure is to revise the product after lecture learning and is the final product development.

At the stage of testing the effectiveness of the device, it is very important to carry out a careful evaluation of its effectiveness. In experimental research, the control class and experimental class are used as comparisons to see the impact or differences that may arise as a result of implementing an intervention. During this phase, the data obtained from the two groups is processed and statistically analyzed to determine whether the observed differences are truly scientifically significant. In this context, analysis using statistical tools such as SPSS (Statistical Package for the Social Sciences) can provide deep insight into the significance of the results. The results of statistical tests, namely the T test, provide important information about the differences between the control and experimental groups. The Sig (2-tailed) value produced by SPSS during learning using the developed tool produces a value of less than 0.05, this shows that the difference observed between the experimental class and the control class is statistically significant.

A Sig value of less than 0.05 indicates that the observed differences are unlikely to occur by chance. In other words, these results provide confidence that the intervention or changes implemented in the experimental class have a real impact and are significantly different compared to the control group. Thus, these findings

strengthen the evidence for the effectiveness of the intervention or change that has been tested, providing a strong scientific basis for continuing or adapting the strategy for further development.

The significant results between the control and experimental classes indicate that the needs of each student in the experimental class are more accommodated than in the control class. This happens because the learning tools are made according to the rules of differentiated learning, namely teaching students according to their learning profile and assessing learning outcomes according to the profile. This is different from the control class where students are given the same treatment in learning even though they have different abilities, so there are students who have not been accommodated optimally. This is in line with the research results of Siburian, R. et al. (2019) and Syarifuddin & Nurmi (2022) that differentiated learning can make learning more effective. The development of differentiated learning tools is still rarely used in universities, therefore it is hoped that this research can become a reference material for further development because it has been proven effective. Even though the results of this study are promising, there are still many shortcomings to say for sure because the sample we used was still very limited. It is hoped that researchers at other universities can carry out similar research to reveal whether differentiated learning is suitable for massive implementation.

CONCLUSION

Research on the development of differentiated learning tools as an initiator of independent learning uses the Borg and Gall steps and is limited to five initial steps including: (1) Research and Information Collection, (2) Planning, (3) Developing Preliminary Form of Product, (4) Preliminary Field Testing, (5) Revising Main Product. The tool developed is suitable for use in accordance with theoretical validity by experts. When applied in learning and tested using the T test, it was found that the experimental class that used the developed device and the control class that did not use the device were significantly different. The experimental class had better results.

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