❐   57

Development of the MDS Model to Support Students' Learning Management

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ABSTRACT

It is very important to manage student learning so that lectures run well. One effort that can be made is to improve learning management capabilities. Developing a learning model, in this case, the managing, drawing, searching (MDS) model, could be an option for development. This research aims to develop an MDS model for use with students. The method used is research and development (R&D) using the ADDIE model approach. The results of this research show that there are three stages of the MDS model, namely manage, which is the stage of problem management that will be discussed by students. The second stage is to describe the problem to be solved along with the solution. The third stage is searching, namely the stage of finding facts related to the solution to the problem. The results of the validation of the MDS model show very valid results by expert 1 with a score of 3.70, and expert 2 with a score of 3.90, which can be interpreted as the MDS model being suitable for use in learning. This research concludes that the MDS model can be used in learning to improve learning management capabilities.

Introduction

Technological developments in the world of education are very important for further development. One of them is related to managing student learning. Technological developments require students to use technology as a facility that can be used to overcome existing problems. Technology is a way to adapt to independent learning, in this case, the ability to manage learning (Noh et al., 2020; Poeck, 2019). One of the learning management problems that can be overcome is by training students to be able to manage learning that is already underway, namely by developing a learning model that has stages for managing learning.

Various previous learning models have been developed and have shown results that can be said to improve critical thinking skills. Some examples of learning models are the OIDDE model and the RMS model (Husamah et al., 2018; Muhlisin et al., 2016). The OIDDE model is a model that focuses on developing students' critical thinking abilities which are centered

on Higher Order Thinking Skills (HOTS) abilities. The HOTS capability can be trained by learning using the OIDDE model which is integrated with various other models. Apart from the OIDDE model, there is another model, namely the RMS model which focuses on the ability for scientific literacy. It is important to train these literacy skills about the learning stages which must prioritize students' literacy strengths. The development of the OIDDE and RMS models is an illustration that the development of learning models is an innovation in learning.

Learning development is a solution to experiencing learning stagnation in the 21st century. The Manage, Drawing, Searching (MDS) model can be an alternative learning model to improve students' learning management abilities. The development of this learning model is following the needs of the 21st century related to the implementation of critical thinking skills which are very relevant to the 21st century. Students in the 21st century must be able to have good management skills in terms of classroom learning and independent learning (Cukurova & Bennett, 2018; Khlaisang & Koraneekij, 2019; Reyna et al., 2018). Students who can manage their learning well will be able to adapt to the needs of the 21st century which are very competitive with current developments.

Based on this description, it can be seen that the urgency of this research is that there is still little development of learning models that discuss learning management. The needs of the 21st century is related to learning management abilities which are closely related to students' critical thinking abilities in the 21st century (Akcil et al., 2017; Saptono et al., 2020; Xia, 2017). The MDS model could be a short-term solution to improve the quality of education in Indonesia, this model could be the answer to various problems related to learning management. The MDS model is implemented by prioritizing the benefits that will be obtained for students and teachers. This is in accordance with the needs of the 21st century which prioritizes soft skills that are useful for competition in the world of work (Fitrianawati et al., 2020; Khoiriyah & Husamah, 2018; Lay & Osman, 2018; Rahman et al., 2019; Sadiqin et al., 2017). The need for learning development based on critical thinking skills and good learning management will have the potential to make students more independent in learning so that they are not left behind in getting information related to lecture material. Learning management is an important point in the development of 21st-century education that is in line with the needs of the 21st century. Technological developments in this case also play a role in making the development of technology-based learning mandatory. Based on this, it can be concluded that this research aims to develop the MDS model in the context of student learning management.

Method

This research was carried out in 2023 at Muhammadiyah University, Jakarta. The method used in this research is the research and development (R&D) method which is adapted to the ADDIE development stages (Analyze, Design, Development, Implement, Evaluate) which is one of the development stages that is often used (Branch, 2009). The first stage is to carry out an analysis of various needs in the field, in this case, the need for learning models. The second stage is to design the Manage, Drawing, Searching (MDS) model that will be developed. The third stage is the development of the MDS model by completing various learning stages that can be carried out by students and lecturers as subject users of the model. The fourth stage is related to the implementation of the MDS model and the evaluation of the MDS model. The stages of developing the MDS model start from the stages

of analyzing, designing, developing the MDS model, implementing and evaluating (see Figure 1).
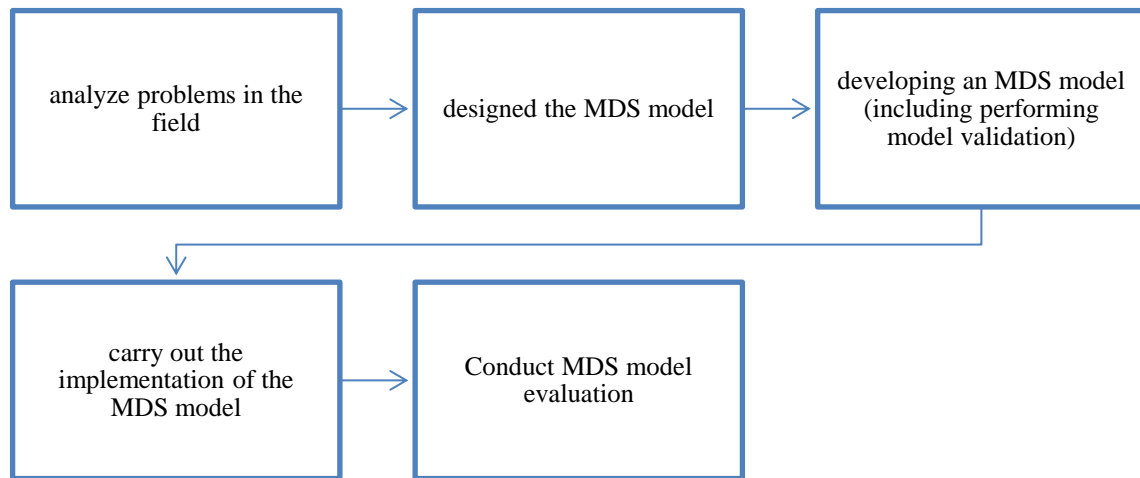

Figure 1. Flowchart of MDS development stages

The stages of research carried out are at the development stage, implementation and evaluation will be carried out in future research. Validation model is carried out by learning experts. The model validation assessment scale consists of 4 categories, namely very valid, valid, less valid, and invalid (Table 1). An MDS model that has a very valid and valid category can be said to be suitable for use for learning. While it is less valid, it can be said that the MDS model needs to be revised before being used in learning.

Table 1. Interval categories from model validation results

Interval Score	Category
$3,25 < x \leq 4,00$	Very Valid
$2,50 \leq x \leq 3,25$	Valid
$1,75 < x < 2,50$	Less Valid
$1,00 < x < 1,75$	Invalid

Results and Discussion

The results of developing the MDS model are in the form of 3 learning stages starting from managing, drawing, and searching (MDS). These stages are designed based on student needs to develop learning that is closely related to learning management. The results of developing the MDS model in outline of the learning stages can be seen in Figure 2.
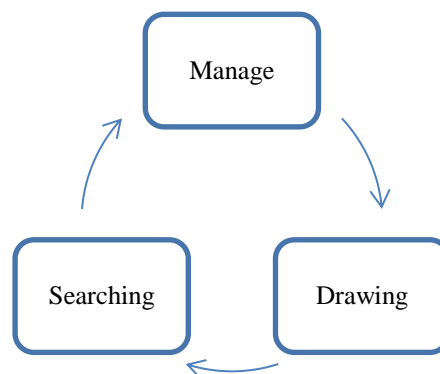

Figure 2. MDS learning stages

The first learning stage is managing problems which will be discussed and studied in the lecture meeting. The second learning stage is to draw a picture of the problem and possible solutions to solve the problem. The third stage is to search for supporting facts and references from scientific journals. More clearly, the learning stages carried out can be seen in Table 2.

Table 2. Student activities and lecturer activities

Stages	Students' activities	Lecturer activities
Manage	Students manage problems on the topic to be solved. The purpose of this stage is to prevent off-topic discussion.	Provide an outline of the problem to be solved.
Drawing	Students create a picture using various types of methods, either by using a concept map or using a mind map.	Direct students to create a picture by giving them sufficient time to do it.
Searching	Students search for supporting facts through journals that support problem-solving.	The lecturer confirms the facts that the students have obtained.

The results of this research show that the MDS model has a very valid category, indicating that the MDS model is suitable for use for learning. The validation results of the MDS model also show that this model is a concrete and innovative solution for learning management. The results of the validation scores and categories from the MDS model can be seen in Table 3.

Table 3. Validation results related to the MDS learning model

Validator	Score	Category
Learning expert 1	3.70	Very valid
Learning expert 2	3.90	Very valid

The results of this research show that the MDS model has very valid categories so it can be used in learning. The stages of the MDS model can be adjusted to the needs of the education provided to students. The MDS model facilitates students to be able to make real contributions in solving problems around them through classroom learning. The MDS model is an innovative model to train students to manage existing problems. The results of developing the MDS model can be a recommendation for lecturers in providing contextual learning models to students.

MDS learning that is contextual to the needs of the 21st century is very suitable when used to improve students' abilities in the 21st century, for example, to improve critical thinking skills (Khasanah et al., 2017; Maclean & Pavlova, 2017; Puspita & Jatmiko, 2013; Wall, 2015). Problems managed by students enable students' critical thinking skills to be implemented well so they can solve problems in the surrounding environment. Critical thinking skills that are trained with the learning model in this case are the MDS model which has the advantage of prioritizing student learning activities in critical thinking. This critical thinking ability is an answer to the lack of solutions to various problems that exist in the student environment.

Learning management is important because students have many assignments that must be completed each semester. The large number of assignments certainly requires an appropriate learning model so that assignments can be done in line with learning objectives and save time. Students' ability to manage problems is also an important part of critical thinking (Aliu & Aigbavboa, 2023; Dwyer et al., 2014). Students who have critical thinking skills will usually easily accommodate various problems and find solutions to these problems. The ability to manage learning is closely related to the ability to think critically,

this is because people who think critically will usually be more systematic and indicate that their management skills are also good in learning.

Students who can adapt to 21st-century developments will find it easier to improve their ability to manage problems. One thing that needs to be managed is related to independent learning. The existence of technology and its rapid development means that learning has changed so much that students must be ready to adapt to digital learning. Digital learning media in terms of learning management is very helpful in enabling students to be able to manage learning in class. Students can utilize learning media such as the learning management system, Google Classroom, and WhatsApp as an alternative to make it easier to manage assignments more independently (Alhawiti & Abdelhamid, 2017; Madge et al., 2019).

Conclusion

Based on the research results, it can be concluded that the MDS learning model already has categories suitable for use in learning. The learning process using the MDS model requires adjustments because not all learning topics can be implemented directly with the MDS learning model, the recommended topics are related to problems experienced by students in everyday life. This is because the MDS model prioritizes problem management. Suggestions for future research are related to the development of learning models that are more integrated with learning media.

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