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DEVELOPING LEARNING-VIDEO WITH SCIENTIFIC APPROACH ON PROBLEM BASED INSTRUCTION

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ABSTRACT

The aim of this research is to develop learning-video with scientific approach that is used on learning process in Mathematics Education programme's course named Innovative Teaching and Learning 2. The method used in this research is ASSURE (Analyse learners, State objectives, Select-modify-design media and materials, Utilise media and materials, Require learner participation). The research is ongoing and for this paper, the information provided is up to the step of Select-modify-design media and materials which brings the results as follow: (1) Analyse learners: learners need learning-video for choosing/sorting/organising the materials correspond to the learning model, confusion still experienced when they learning about phase of problem based instruction, learners still confused when they will combine between step scientific approach and problem based instruction. (2) State objectives: based on analyse learners from step (1), we need learning-video development with scientific approach on problem based instruction. (3) Select-modify-design media and materials: we need such as: lesson plan, worksheet, scenario of learning and script for audio and video. The validated plan is acceptable.

Key Word: Learning-video, Scientific Approach, Problem Based Instruction

INTRODUCTION

Learning process based on curriculum 2013 use scientific approach. Learning with scientific approach have five steps. The first step is observation. In observation, students must identify the problem. The problem it could be from video or condition in the real world. The second step is making a question. Making question means students feel interest with that problem until raise question. The third step is collect the information. Collecting information means students find the data for answer the question that they make and making a conclusion. The fourth step is communication. In communication, students are presentation about their idea/information/result from discuss. The last step is conclusion. In conclusion, students learn about intertwining the information/data and the question to solve the problem or another information to support their knowledge, skills and attitude. That step not a final, The government hope that students could develop their ability in creative (Depdikbud, 2014).

One of subject, Teaching and learning Innovative 2, in department of education Surabaya State University is teach some learning models with scientific approach orientation. The Learning models that students learn are discovery-inquiry model, project based and problem based instruction.

All the time learning process in teaching and learning innovative 2 never use a video to explain the step in each models. In other hands, using a video can help to describe the step each models. A gommuoh dan Nzewi (2003) said that videos are instructional tool which have capacity to increase learning quality, interest, thought and the knowledge could concrete. Adelakun (2003) dan Gana (2000) have idea that video is a potential to increase the students learn more, learn longer in memory, and could be development skills.

Development skills in this research is teaching skills. One of the important component for preservice teacher is teaching skills. The preservice teacher need that skills for teaching in the school. From the video the

preservice students can learn how to be a good teacher. This point is the preservice students can observe from the video. Preservice students can imitation from video about teaching with scientific approach.

In this paper tell about making learning video with scientific approach in problem based instruction. Some preservice teacher still confused that models because they do not know how to doing that models in real teaching. So that, the paper give the information about learning video that preservice teacher need.

METHODS

Focus this research is developing learning video with scientific approach for preservice teacher to improve teaching skill. The method used in this research is ASSURE (Analyse learners, State objectives, Select-modify-design media and materials, Utilise media and materials, Require learner participation). The research is ongoing and for this paper, the information provided is up to the step of Select-modify-design media and materials.

The subjects of this research are preservice teacher class A in 2012. Because they will be practice their ability in teaching skill on school (In Unesa called Program Pengajaran Lapangan).

RESULT AND EXPLANATION

The first step in ASSURE is analyze learners, it must know about the ability of phase a learning models and scientific approach, this research use a open questioner. It use for to know about preservice need. The respondents are forty-three preservice teacher class A in 2012. For analyze learners, we get twenty-one preservice teacher confused when they will combine between step scientific approach and problem based instruction. The reasons are scientific approach difficult to imply in mathematics and phase of problem based instruction is tricky to combine with scientific approach.. Eighteen preservice teacher confusion still experienced when they learning about phase of problem based instruction. They told that phase of problem based instruction is longer and do not make sense if the learning process just talking one topics for a month and four preservice teacher need learning video for choosing/sorting/organising the materials correspond to the learning model. They to know how combination of scientific approach and problem based instruction do in classroom and they want to know how about the lesson plan and worksheet that learning process.

The second step of ASSURE is state objectives. In this step, The result is about topics in mathematics. The topic is application of rotation of volume objects. This topic is suitable in characteristic of problem based instruction and scientific approach. From that background, the decision is they need learning video to improve their knowledge about combination problem based instruction and scientific approach.

The next step is select-modify-design media and materials. In this step we are preparation lesson plan, worksheet and script for video. In this research, the validator of lesson plan and worksheet is three lecturer in mathematics education, they are expert in scientific approach, learning models and mathematics content knowledge.

The result of validation will be show in Table 1. In that table we know that lesson plan, worksheet and script of learning is acceptable to continue in making a video learning.

Table 1. The Recapitulation of Validation Lesson Plan, Worsheet and Script

No	Validator	The result		
		Lesson Plan	Worksheet	Script
1	P W	Acceptable category A	Acceptable category B	Acceptable category A
2	EBR	Acceptable category A	Acceptable category B	Acceptable category B
3	MTB	Acceptable category A	Acceptable category B	Acceptable category B

In worksheet still have revision about the logic of the problem and in the script any order not suitable with the lesson plan. For all the validator say that acceptable.

CONCLUSION

The conclusion is (1) Analyse learners: learners need learning-video for choosing/sorting/organising the materials correspond to the learning model, confusion still experienced when they learning about phase of problem based instruction, learners still confused when they will combine between step scientific approach and problem based instruction. (2) State objectives: based on analyse learners from step (1), we need learning-video development with scientific approach on problem based instruction. (3) Select-modify-design media and materials: we need such as: lesson plan, worksheet, scenario of learning and script for audio and video. The validated plan is acceptable.

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