

VALIDITY OF TRAINING MODEL FOR TEACHING MATERIALS BASED ON SCIENCE LITERACY

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Abstract-This research aims to determine the validity of the Scientific Literacy-based Teaching Materials Training Management Model based on material experts, learning design experts, teacher responses. This research was conducted at SMP N 11 Medan, using descriptive data analysis techniques. Model development was carried out using the Thiagarajan Four-D (4-D) development model which consists of four stages, namely definition, design, development and deployment. The resulting product is a training model that will be used by teachers at SMP N 11 Medan. The feasibility of the model was assessed by validation experts. The results of the material expert assessment show that it is in the very good category with an average percentage of 90.05% (very good), design expert 90.50% (very good), so it can be concluded that the research product for the development of Science Literacy Based Teaching Material Training Management as a model The training developed is suitable for use as a training model for teachers. Validation of the training model is carried out with the aim of obtaining input and improvements to the training model that has been developed by researchers.

Keyword-*Training Model, Science Literacy*

INTRODUCTION

Education is an important aspect in a country's development, no matter how prosperous the country is, if it is not supported by quality human resources (HR), the country will not maintain its prosperity [1]. To build, develop and maintain the prosperity of a country is not an easy thing. Therefore, education seeks to not only prioritize knowledge and skills, but also develop the attitudes and behavior of students who are virtuous and adaptive so that they are ready to enter social life.

The main problem in the field of education today is the low quality of teachers and the relevance of teacher competence. The low quality of educators is reflected in the large number of teachers who do not meet the basic requirements as educators. The problem of the relevance of educators' competence to the needs of the world of education is characterized by the large number of teachers whose teaching does not match their educational background (mismatch) [2]. Improving the quality and relevance of educators' competencies can be

achieved through education and training programs (Diklat) [3].

Some teachers in Indonesia have even been declared unfit to teach. Percentage of teachers according to eligibility to teach in various educational units: for junior high schools 54.12% (public) and 60.99% (private). Apart from that, of the approximately 680,000 SMP/MTS teachers, only 38.8% have a D-3 diploma or above.

One of the factors in supporting activities to improve the quality of human resources, especially for teachers, is training. Training acts as a basic reference that can direct teachers' teaching activities appropriately so that teachers will become more focused and learning objectives can be achieved optimally [4]. The existence of training makes it easier for teachers to understand concepts thoroughly so that they can make teachers more innovative in learning [5].

Teacher training programs can have more optimal results if they always pay attention to the development and principles of adult learning in the sense that the training approach used is adapted to the characteristics of adults [6]. The learning approach for increasingly mature participants will reduce the elements of mentoring, while the elements of discussion, reasoning and independent learning will become stronger [7]. Learning methods in adult education/training are not only for delivering learning materials, but are broader than that, namely managing learning activities that can foster ways of learning to achieve goals more precisely [8].

RESEARCH METHODS

The research model used is Research and development [9]. A development model is a set of procedures that are carried out sequentially in carrying out the design and development of a product [10]. The development method used is the proposed development model which consists of three steps, namely definition, design and development [11]. Validity analysis uses a Likert scale based on a validity questionnaire with steps: Each score uses a 1-5 Likert scale adding up the scores of each validator for all validators. [12]

DISCUSSION

Observations carried out on research objects consisting of teachers at SMP 11 Medan said that the training they had attended was not interesting and very boring. However, instructors are reluctant to create and develop their own training models according to learning needs and adapt to the needs of the times and the characteristics of students.

The training model used previously only contained a summary of the material and questions about the material without linking it to scientific literacy. Based on the results of interviews with SMP N 11 Medan, it was found that teachers had difficulty explaining material to students. The teachers also never brought students to make direct observations in the field. Teachers are also confused about instructing teachers to carry out individual and group observations because there is no appropriate learning model for carrying out these observations.

Design Stage (Design)

This stage was carried out with the aim of designing a Science Literacy Based Teaching Material Training Management Model on the material in connection with the learning objectives that were stated at the definition stage. Activities at this stage are preparing material, preparing the format for writing the training model, and initial design. The preparation of the material is adapted to the conditions in the environment around the students

Development Stage (Development)

Expert assessment aims to obtain a scientifically valid prototype. Validation of the Science Literacy Based Teaching Material Training Management Model was carried out by 2 validators consisting of Medan State University Lecturers. The development stage is the implementation stage of the product planning that was carried out in the previous stage. The aim of this stage is to produce a final product of the Science Literacy Based Teaching Material Training Management Model that is suitable for use. The steps taken are as follows: At the development stage, the product training model developed is validated by expert lecturers and teachers to determine the feasibility of the training model developed by researchers before being used for field trials. The validation results from expert lecturers and teachers are draft III and serve as revision material so that the training model developed will be even better with criticism and suggestions from expert lecturers and course lecturers.

The results of the material expert validation show that there are improvements that need to be made, especially regarding content, the image writing system, the need for several case examples, mini research and practice questions to facilitate teachers' understanding of the training model. The results of the revision of the training model by material experts are on the first page where the sentences are corrected so that they are easier to understand and there are no misinterpretations and material experts suggest contextual examples so that readers can more easily understand the information flow scheme in the material. This can be corrected and can be seen on page 1 on training model. Furthermore, material experts suggest using more

detailed drawings, the most important thing is that all the main components are present.

Material Expert Validation Result Data

Validation of the product is intended to determine the opinion of material experts regarding the appropriateness of the content, appropriateness of presentation, and components of scientific literacy as input for improving the quality of the training model that has been developed. The validation results in the form of assessment scores regarding the suitability of the learning material content can be seen in Appendix 1.

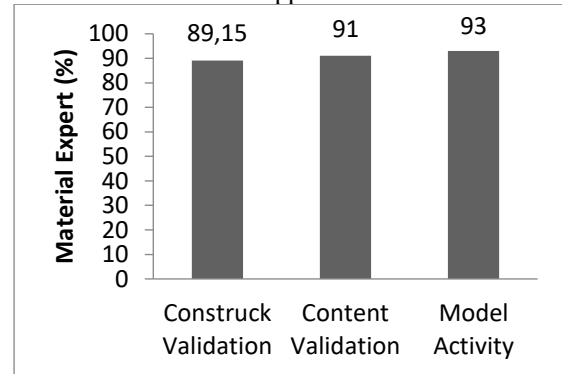


Figure 1 Average Material Expert Validation Results

Based on the results of validating the feasibility of the content of the material, the training model shows that the feasibility component of the content is in the very good category. Overall it can be concluded that the material expert's assessment of the construct is in very good criteria, namely 89.15%. The validation results in the form of assessment scores on the appropriateness of presenting learning material can be seen in Appendix 1. Based on the validation results of the appropriateness of presenting material, the training model shows that the appropriateness of presentation component is in the good category with a score of 91%. The validation results in the form of an assessment score for the model's implementation are in the very good category with a score of 93%. Overall it can be concluded that the material expert's assessment of this component is in very good criteria.

Design Expert Validation Results Data

Validation of the product is intended to find out the opinion of design experts regarding graphics, presentation techniques and scientific literacy design as input for improving the quality of the training model that has been developed. The results of the design expert validation show that there are improvements that need to be made, especially regarding the cover of the training model, title background, margins, fonts and so on to facilitate teachers' understanding of the training model.

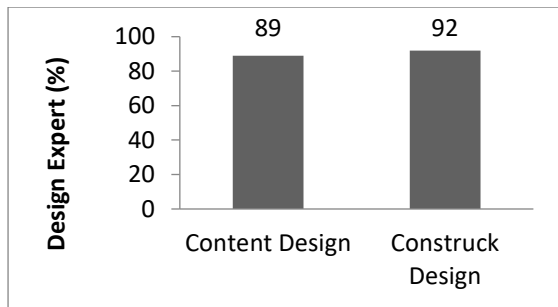


Figure 2 Average Design Expert Validation Results

Design experts validate training model products on design aspects regarding training model components such as construct design and content design. From the validation results of the training model design, it was concluded that the training model design for scientific literacy-based teaching materials was in very good criteria, with an average percentage of 90.5%.

Conclusion

The results of descriptive analysis of model validation show that the science literacy-based training model is valid in terms of material and design. A valid training model can be used as a guide and reference for instructors and teachers in planning classroom learning to assist teachers in creating training in schools.

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