Designing E-Training Computer Assisted Instruction Used to Pedagogic Competency in Vocational Education

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Abstract. This study aims to make the syntax of e-training models valid, practical, and effective on pedagogical competencies. Computer-based training is an e-training model that suits students' desires in developing pedagogical competencies to get quality graduates. The research method used is Research and Development by conducting expert validity tests with Focus Group Discussion (FGD) and limited trials of the e-training model. The results of this study are formed in the syntax of the e-training model which consists of; (1) Preparation Phase includes Planning, Training Program, and Training Program Preparation; (2) Implementation Phase including E-Training, Face-to-Face, Discussion, Demonstration; (3) The evaluation phase includes Input, Process, Output, and Impact. Finally, implementing the e-training model can help prospective educators prepare to enter into vocational teacher candidates. The results are expected to meet the needs of vocational teacher candidates who have pedagogical competencies that influence the vocational students' influence.

Keyword: e-training, Computer Assisted Instruction, Pedagogic, Vocational Education

1. Introduction

The learning process mandated by Government Regulation No. 32 of 2013, namely the learning process in vocational education, that students are given the opportunity to develop their potential and creativity so that they are expected to have skills according to their expertise. The reality of vocational graduates is the biggest contributor to intellectual unemployment each year, based on data held by the Central Bureau of Statistics (BPS) about the Open Unemployment Rate (TPT) dominated by Vocational High School graduates from the total intellectual unemployment starting from February 2016 as many as 7.02 million people or 5.5 percent, and in [1] as many as 7.03 million people or 5.61 percent, and finally in [2] as many as 6.68 million people or 5.33 percent. Besides that, many factors that greatly influence the number of unemployed SMK graduates include the low quality and competence of vocational teachers as well as teacher problems in developing their potential as educators.

This condition was confirmed by the issuance of Presidential Instruction No. 9 of 2016 [6] concerning the level of quality and vocational graduates having competitiveness, one of which is about improving quality and graduates who compete with prospective vocational educators, especially regarding quality preparation. vocational teachers through education and training activities in universities. The problem

situation that occurs is in dire need of an urgent and targeted solution. One alternative solution that can be done in an effort to increase the competence of SMK teachers can be achieved through education and training programs. However, the existing training is still ineffective and not optimal because the materials and models used are very rigid, monotonous and limited, it is also difficult to reach all existing teachers and the training model used is still not in accordance with the character of the SMK [4].

The need for innovative training models that can increase creativity and innovation by a vocational school teacher.One alternative is the development of training models through computer-based and online training models [18], [16], [17], [14], [15], [21], [22] so as to provide students with a full learning experience. The purpose of this study is to produce valid, practical and effective e-training pedagogic competency model learning steps. the urgency of this research is that it is increasingly concerning the number of productive age unemployed both from higher education graduates and vocational schools, based on data held by the Central Statistics Agency (BPS) on the Open Unemployment Rate (TPT) which is dominated by graduates of Vocational High Schools. Besides that, many factors that greatly influence the number of unemployed SMK graduates include the low quality and competence of vocational teachers as well as teacher problems in developing their potential as educators. This condition is reinforced by the issuance of Presidential Instruction No. 9 of 2016, one of its contents is related to preparing quality vocational teachers (vocational) through education and training activities in Higher Education. Requires urgent and online solutions, alternative solutions that can be done through education and training programs (training), namely the Design of E-Training Models to Improve Pedagogical Competencies of Technical College Graduates

2. Methodology

Research and development steps. Research produces new products in the learning system that will be applied to students, following the stages:

a. Need analysis

At this stage a needs analysis of pedagogic competencies is carried out, looking at competencies that are in accordance with the implementation needs of e-training in pedagogic competencies and determining training objectives. The training objectives determine the level of ability of students, especially in e-training pedagogical competence by conducting a pre-test. The results of the pre-test obtained material mapping according to the abilities of students.

b. Design

Design the training approach used. Activities carried out by formulating training objectives, planning methods used to achieve goals, compiling material to be trained, selecting the media to be used. Next, identify the evaluation used.

c. Evaluation

The assessment carried out refers to the activities carried out by students starting from preparing training evaluation grids which function to assess the process of making learning devices such as Syllabus, Learning Implementation Plans, and Teaching Materials. Then a post-test was conducted, to see the understanding of the concepts of the training material and prepare for the Vocational Teacher Candidate Competency Test.

3. Result and Discussion

Syntax results of the e-training model that can be implemented in the training process. The following stages consist of (1) Preparation Phase including Planning, Training Program, and Training Program

Preparation; (2) Implementation Phase including E-Training, Face-to-Face, Discussion, Demonstration; (3) The evaluation phase includes Input, Process, Output, and Impact.

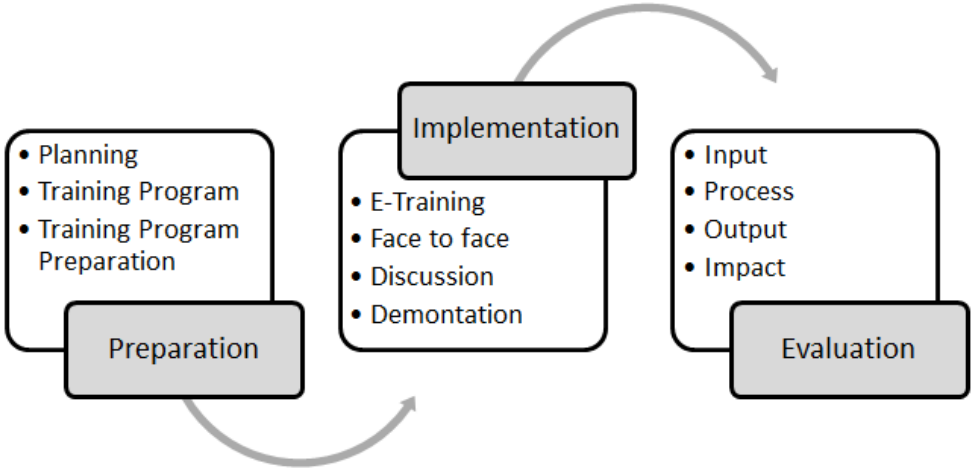

Figure 1. E-Training Model of Pedagogic Competence

a. Preparation

At this stage it is done by assessing the situation, setting goals, creating a conducive environment. Then proceed with social interaction, which prepares participants and instructors to get to know each other.

b. Preparation of Training Materials

At this stage, the materials needed for training are well prepared. The intended material is equipment to support training activities, for example, ATK, preparation of training activities guides, tools for practice (for practicing in labor), and modules, computer devices, and applications. After all is well prepared, face-to-face training is carried out.

c. Presentation

At this stage, educators can present the subject matter both in the form of concepts and skills. Presentation of material can be: (1) presentation of material in small steps so that the material can be mastered by students in a relatively short time; (2) giving examples of concepts; (3) modeling or demonstrating skills by demonstration or explanation of work steps towards the task; and (4) re-explain difficult things.

d. Implementation E-Training

At this stage consists of (1) Structured Exercises, educators guide students to do the exercises. The important role of educators in this phase is to provide feedback on students' responses and provide reinforcement of the students' responses that are correct and correct students' wrong responses. (2) Guided training, educators provide opportunities for students to practice concepts or skills. This guided exercise is also used by educators to assess/assess students' abilities to do their jobs. In this phase, the role of the educator is to monitor and provide guidance if needed. (3) Independent training, students carry out training activities independently, this phase can be passed by students if they have mastered the stages of the task of 85-90% in the training guidance phase so that training is carried out according to the planning that has been made. (4) E-Training as a learning media in the training makes

it easy to access material, videos and carry out ability tests so that the training runs in accordance with the training plane. Training Assessment

At this stage, the assessment carried out refers to the activities carried out by students starting from preparing training evaluation grids that function to assess the process of making learning devices such as Syllabus, Learning Implementation Plans, and Teaching Materials. Then a post-test was conducted, to see the understanding of the concepts of the training material and prepare for the Vocational Teacher Candidate Competency Test.

e. Understanding Input

Training Input is everything that must be available because it is needed for the process to take place. Something in the form of resources and software as well as expectations as a guide for the ongoing process, such as curriculum, students, costs, organization, administration and sub-components, regulations, facilities, and infrastructure.

f. Understanding Process

The training process is something to increase competence. Input activities will influence the process whereas Process will affect the output. The training process referred to is the decision-making process, program management, face-to-face training activities, and program evaluation, considering that the level of importance in the training process is very important.

g. Understanding Output

The training output is the performance of the participants. Participant performance is the performance of participants resulting from the process / participant behavior. Participant performance can be measured by the quality, effectiveness, and morale of the participants. Thus it can be concluded that the output expected by participants in the performance of participants is the result of the training process. The output produced in the training is divided into two, namely output in the form of academic (academic) achievements and output in the form of non-academic achievements. Academic achievement in the form of test scores, ways of thinking (critical, creative / divergent, logical, rational, inductive, deductive, and scientific). Non-academic output, such as tolerance, discipline, loyalty, self-esteem, hard work, good cooperation, high affection for others, high solidarity, personal achievement.

h. Definition of Impact

The effect of subsequent training on individual, social, attitude, performance, enthusiasm, systems, employment competencies of graduates can compete in the world of work.

Vocational education is required to be able to produce competent graduates in order to improve performance and readiness in the era of the industrial revolution 4.0. In vocational education, participants are expected to have skills, knowledge and attitudes so that graduates are ready to use and competent in entering the world of work as prospective professional teachers and can develop their potential and creativity so that they do not only act as job seekers, but also as job openers. One of the learning components that need to be developed is an e-training model that is in accordance with standards to support vocational education so that it runs effectively and efficiently.

The training process that has not yet fostered high thinking and analysis skills while the needs in the field require work types with conditions like this. In dealing with problems like this, changes need to be made in the training process, one of which is by changing the existing training model into the e-training model, which can guide and train students in developing their creativity in learning so they can improve skills and learning outcomes. One e-training model that can bridge these problems is the Computer Assisted Instruction pedagogic competency e-training model which is an active e-training model that can provide opportunities for students to think actively and develop their creativity and can produce learning outcomes that are able to answer the challenges of the world work and society.

The e-training model of pedagogic competence Computer Assisted Instruction is a process of training or skills education that is designed and implemented based on procedures in the pedagogical competency e-training model of Computer Assisted Instruction. The e-training model of pedagogic

competence Computer Assisted Instruction emphasizes training, where participants (students) can carry out training activities according to procedures and steps that demand the expected pedagogical competence.

In the training process with the Computer Assisted Instruction pedagogical competency e-training model students are required to be active such as raising important questions related to pedagogic competence. The e-training model of pedagogic competence in Computer Assisted Instruction consists of the steps in the training process.

The e-training model of pedagogic competence in Computer Assisted Instruction is one alternative in answering the problem of the training process in vocational education. The fact that there is an educational process that occurs is still oriented to short-term results and limited to the transfer of knowledge, has not interpreted knowledge. In addition to producing a Computer Assisted Instruction e-training model that fits the needs of informatics and computer engineering education graduates, an online-based competency test system is also produced as a supplement in conducting training. Online tests can be directly tried by participants who have carried out training and can immediately know the abilities and competencies of each trainee.

4. Conclusion

Vocational education graduate competency attainment can be achieved through e-training. Quality computer-based training will be able to produce graduates who are capable of pedagogic competence. Teacher training requires careful planning based on an analysis of teacher needs, adequate training teaching materials, appropriate and effective training strategies and methods so that participants or prospective teachers are able to carry out learning activities properly and be able to respond to student needs. and study in general.

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