



DEVELOPMENT OF VIRTUAL REALITY (VR) AS A PRACTICAL DEVICE FOR TELEVISION BROADCASTING MANAGEMENT

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Abstract:

The Open University Education Technology study program is in desperate need of a type of media that is able to provide maximum learning services to students. Therefore, a learning material product is needed to support these needs. Development research is needed for VR and AR-based learning materials to be realized. This research is a development research. The development model used refers to the ADDIE model (Analysis, Design, Develop, Implementation, and Evaluation). The choice of ADDIE model in this development research is based on several reasons, namely, this model is a procedural model, namely a model that is descriptive, showing clear and careful steps to produce the product. Study of competencies produce a competency map of the results of the study based on the principles of development of the field of study and the demands of educational technology expertise, especially Television Broadcasting Management. The results of the study of module materials found the existence of competency sequences that are not appropriate judging from the process or stages of Management. The results of this study showed that it is necessary to rearrange the competencies of

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Courses TPEN 4312 and the Television Broadcasting Management Module should be revised. Reconstructing the Practice Handbook as a handle for students to perform practical tasks and Develop more suitable practical tools based on the results of practical tasks.

Keywords: virtual reality, practical device, television broadcasting management

1. Introduction

Distance education provides broader learning opportunities by using flexible learning and learning methods, as well as providing, visiting and conveying knowledge to students wherever they reside, thus helping to realize universal access. Distance education is characterized by the distance between people who learn, teachers and with education management centers and more use / rely on the use of media. Open distance education (PTJJ) Students are not always in the guidance of teachers, they learn more independently that is able to study anywhere, anytime, and can choose a program according to their own needs. The reality in the field of students of distance learning programs is considered to have a low level of completion (study) with a low level of academic achievement. This problem can be understood because of the various conditions faced by remote learners that of course must be sought for solvers so that distance learning becomes in demand.

Every provider of distance education must constantly improve learning assistance services to students is no exception for the Open University which has implemented an open and distance education system since its inception. At the age of 36 years and has about 300 thousand students today must always make improvements in providing learning assistance services to students so that existing students can be maintained and improved achievements. How can the education services that have been provided be able to minimize the obstacles of the community (students) in accessing the various educational programs offered?

One form of learning assistance service is to provide face-to-face tutorials that are implemented with the aim of helping students solve various learning problems through additional explanations, information, discussions, and other activities. In addition, tutorials are also carried out to increase students' motivation to study and complete studies and develop independent learning skills. The provision of tutorials is an integral part of the learning process that implements a self-learning system. This face-to-face tutorial is one of the learning assistance services that are in great demand by students. Nowadays, tutorials especially TTM is a learning aid that must be followed by students. (Andriyani).

The teaching and learning process is the main activity of curriculum implementation that involves communication between teachers and learners. In distance education where teachers and learners are separated by place and time, communication

can take place both in face-to-face and by media. Learning media becomes very important because through the media they learn to achieve competence.

In the Open University Education Technology Program (Prodi TP-UT), there are several courses with Higher Order Thinking (HOT) competencies that require students to achieve the competency of the course by working on a project / practice. With the development of information and communication technology (ICT) today, separation between teachers and students, is not a barrier to achieving competence. Currently there are various appropriate learning media that can facilitate the achievement of competencies of HOT-level courses by students. One of them is learning media based on Virtual Reality (VR) and Augmented Reality (AR).

Virtual Reality (VR) or reality is a technology that allows users to interact with an environment simulated by a computer (computer-simulated environment), which is an actual environment imitated or an environment that really only exists in the imagination (wikipedia.org, December 5, 2019). In addition, it is also known as Augmented Reality (AR) based media, which is a technology that combines two or three-dimensional virtual objects into a real three-dimensional environment and then projects the virtual objects in time. Information displayed by virtual objects helps users carry out activities in the real world (wikipedia.org, 5 December 2019).

Both types of media as above are one type of media that has the potential to help students learn in distance education. Prodi TP-UT desperately needs this type of media, to provide maximum learning services to students with these considerations, a series of learning materials development activities are needed, to support the availability of both types of media mentioned above. Development research is needed so that VR and AR-based learning materials can be carried out properly.

2. Methodology

This research is a development research. Gay said (1990) that research and development is interpreted as an effort to develop an effective product, not test the theory. Development research is a process used to develop and validate educational products. The result of development research is not only the development of a product but also to find the answer to the practical problems of a product implementation.

The development model used refers to the ADDIE model (Analysis, Design, Develop, Implementation, and Evaluation). The choice of ADDIE model in this development research is based on several reasons, namely, this model is a procedural model, namely a model that is descriptive, showing clear and careful steps to produce the product. According to (Mulyatiningsih, 2013:201-202) ADDIE Model activities use five stages of development, namely:

Table 1: Addie Model activity summary

Development Stage	Activity
Analysis	Pre planning: thoughts on Virtual Reality (VR) products as a practical device of Television broadcasting management. Identify Virtual Reality (VR) products as a practical device for Television broadcasting management, identify learning content/materials, identify learning environments and delivery strategies.
Design	Designing new product concepts on paper. Designing new product development devices. Drafts are written for each unit. Instructions for application of the design or manufacture of the product are written in detail.
Develop	Developing Virtual Reality (VR) product devices as television broadcasting management practice devices. Create instruments to measure product performance.
Implementation	Getting Started using Virtual Reality (VR) products as a practical device for Television broadcasting management. Looking back at the goals of reference book product development, interaction between learners and asking for initial feedback on the evaluation process.
Evaluation	Look back at the impact of Virtual Reality (VR) as a practical device of Television broadcasting management. Measure the achievement of reference book product development goals. Measuring what has been able to be achieved by the goal and looking for what information can make the product able to achieve maximum results.

Descriptive statistics are selected to answer research questions. Descriptive statistics are used to answer the validity and practicality of virtual reality (VR) developed. After the trial, the analysis was carried out by calculating the positive response shown from the questionnaire by percentage. According to Arikunto (2010:236), calculates the percentage of responses from respondents from each question, namely by the formula:

$$RS = \frac{\text{Number of values per sub variable}}{\text{Maximum number of scores}} \times 100\%$$

Where, RS = Percentage of responses with certain criteria.

From the results of these calculations, the assessment perception of the validity and feasibility of the Virtual Reality (VR) products tested can be concluded from the criteria (excellent, good, not good, very good) that have the highest percentage.

Table 2: Respondent response convention guidelines

Presentation of obtained values (%)	Effectiveness
$X > 76$	Excellent
$50 < X \leq 75$	Good
$25 < X \leq 50$	Less
$X \leq 25$	Very less

3. Results and Discussions

3.1 Analysis and Design

Study of competencies produce a competency map of the results of the study based on the principles of development of the field of study and the demands of educational technology expertise, especially Television Broadcasting Management. The results of the study of module materials found the existence of competency sequences that are not appropriate judging from the process or stages of Management.

After conducting the study, the researchers then conducted research at the stage of planning, management and evaluation. At the planning stage, researchers conduct content needs analysis, analyze the characteristics of target audience, analyze competitor programs, conduct programming television shows with educational content, develop proposals for educational event programs and design strategies for promotion of educational event programs.

3.1 Development

At the management stage, researchers manage production human resources, manage production technology resources, manage production budgeting and manage production processes. While in the evaluation stage, researchers evaluate television programs / programs based on the internet and evaluate the effectiveness of television programs / internet-based programs.

3.2 Implementation

3.2.1 Validity Test

Table 4: Validation Results

No	Component	Percentage (%)	Category
1	Validation of material	83.33	Excellent
2	Validation of media	73.33	Good
3	Validation of design	81.6	Excellent

From Table 4 validation results of the development of Virtual Reality (VR) as a practical device of Television broadcasting management, showed validation of the material obtained the number of scores of 40 with a percentage of 83.33% in the criteria "excellent". Validation of the media obtained the number of scores of 47 or 73.33% is on the criteria "good". Validation of the design obtained the number of scores of 49 or 81.6% was on the criteria "excellent".

3.2.2 Feasibility Test

Table 5: Feasibility Analysis Results

No	Component	Percentage (%)	Category
1	Clarity Audio Visual Virtual Reality (VR)	84.16	Excellent
2	Clarity of Virtual /reality (VR) Material	86.13	Excellent
3	Ease of access	83.09	Excellent
4	User Experience Virtual Reality (VR)	83.94	Excellent

Table 5 above shows that the development of Virtual Reality (VR) as a practice device for Television broadcasting management is very feasible because it falls into the category of excellent. Clarity Audio Visual Virtual Reality (VR) obtained a percentage of 84.16% in the "excellent" criteria. Clarity of Virtual Material /reality (VR) with a percentage of 86.13% is on the "excellent" criteria. Ease of access with a percentage of 83.09% are on the "excellent" criteria. Virtual Reality (VR) User Experience with 83.94% percentage is on the "excellent" criteria.

3.2.3 Evaluation

The direction of TV broadcasting management courses is to achieve the competence of educational technology scholars who are able to manage programs that teach in various open learning spaces both broadcast-based and internet-based (Januszewski & Molenda (2008) and Huang, Spector & Yang (2019). An open space learning environment requires knowledge and skills in managing, which is defined by Januszewski & Molenda (2008) as effectively people, processes, physical infrastructure, and sources of financing to achieve the specified goals. Competencies that need to be achieved by education technology scholars related to television broadcasting management are 1. Ability to plan television programs, 2. Ability to manage the production of television programs, 3. Ability to evaluate television programs.

The subdomain for television broadcasting management courses or internet-based program management is project management which is responsible for delegating a number of tasks in detailed parts of the work to end the main project. The competence of undergraduate education technology related to television broadcasting management courses is project management in planning, managing, and controlling television broadcasting content projects in order to realize a good learning environment and the creation of learning media resources, which take place continuously.

4. Conclusion

The results of this study showed that Virtual Reality (VR) as a television broadcasting management practice device developed proved valid and feasible to use. Therefore, the results of this study showed that it is necessary to rearrange the competencies of Courses TPEN 4312 and the Television Broadcasting Management Module should be revised. Reconstructing the Practice Handbook as a handle for students to perform practical tasks

and Develop/purchase more suitable practical devices based on the results of practical tasks.

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