

Multimedia-Based Learning Model for Gymnastics Skills

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Abstract— This study aims to develop a multimedia-based learning model of basic skill of gymnastic exercise to students majoring Physical and Health Education in State University of Malang. The products of this research and development are multimedia-based learning model of basic skill of gymnastic exercise. This study used Research & Development (R & D) model proposed by Borg and Gall consisting of ten steps. The research subjects are students majoring in Physical and Health Education. The results of this study are responses/assessment from gymnastic floor exercise expert is 80.56% (feasible), responses/assessment from the learning expert is 80.89% (feasible), and responses/assessment from instructional technology expert is 80.83% (feasible). It can be concluded that the development of multimedia-based learning model of basic skill of gymnastic exercise for Physical and Health Education students can be used and applied in the teaching and learning process.

Keywords— teaching and learning, multimedia, gymnastics floor exercise

I. INTRODUCTION

Education is the main means for a nation to be able to develop following the flow of globalization by having higher education quality standards that are adapted to changes in the dynamics of society because education is a means of mastering science. National education still faces many problems that need to be solved systematically. One of them is that educational innovation carried out so far have not been implemented optimally due to the limited learning media that can help students to study independently.

In higher education, the learning process should also be able to stimulate the development of the above aspects properly, especially in practical subjects. Learning is an important element in education. According to [1], learning is an effort that is carried out consciously and planned to create condition in such a way that can motivate the students to learn [2]. The implementation of learning involves at least three main components, namely: lecturers, students, and materials. The content that student learn is covered in the material. The lecturer's duty is to transfer the content or materials to students. To find out whether students have understood what has been taught and what will be taught, students work on structured tasks given by the lecturer. Learning in such a way is still classified as

conventional learning. One characteristic of conventional learning is that lecturers / instructors are the main learning source. The process that occurs in class is still in the level of the teaching process and not learning. Teaching is more identical by transferring knowledge from lecturers to students with indicators of the success of students able to absorb and repeat what is given by the lecturer.

Students of the Department of Physical and Health Education, Faculty of Sport Science, State University of Malang in preparing themselves to go into the community, need to be equipped with various skills in addition to mastering the theory as well as skills in practicing all sports arranged in the curriculum. One practice course that must be mastered is the theory of gymnastics and its practice. Gymnastics have an important contribution in maintaining and improving the physical condition. Gymnastics is one sport that nourishes the body and trains physical fitness elements, such as strength, flexibility, balance, losing fear, independence, courage and confidence, and enhancing social skills.

Learning materials for gymnastics floor exercises are not optimal due to conventional learning model such as lectures, exercises, assignments and not yet facilitating students with learning resources that cover cognition and apperception needs. In learning motion, it is necessary to know the motion itself which is called the cognition stage, this stage is important to form the correct perception of motion so that students can conduct experiments which, although at the beginning there were still many mistakes, this stage is called the fixation stage, if students continue to learn and practice then there is a possibility that students can master certain movements with flexibility and beauty, this stage is called the automation stage. The automation stage does not come suddenly but through two previous processes.

Which is often forgotten in the learning of gymnastics practice is the phase of cognition, which so far still uses lecturing technique. This resulted in slow mastery of good motion. Therefore, it is important to facilitate students in studying well-packed and interesting gymnastic movements, especially those who use science and technology. The use of science and technology in improving students' abilities at this time is necessary. For this reason, our mindset must be

changed to advance by using technology assistance, so that the ability of students to master gymnastics floor exercise increases.

In practicing floor gymnastics, students need to have the confidence and high courage in practicing it. Mastery of the right techniques must be carried out as well as possible in order to obtain better movement results. For this reason, the need for the ability of a lecturer to design learning programs that are varied, interesting and safe to be carried out by students is crucial.

Problems also occur in elementary, junior high school, and senior high school. Teachers do not know the effective and efficient stages in teaching gymnastics floor exercise to the students. They do not provide the steps from simple to complex, from low to advanced level, or from low load to high load. Thus, there are still many students who do not master the gymnastics floor exercise movements properly and correctly. An increase in training load is very important, and proper training load and increasing the training load will gradually improve the ability of gymnastics moves learning [3].

Research and Development is a research design used to produce certain product, and test the effectiveness of the product [4]. Research and development is a process or steps to develop a new product or modify an existing product, which can be accounted for [5]. Thus, Research and development is a cycle that starts from the analyzing the students' needs that require solving problem by using a particular product.

Model as the embodiment of a theory or representative of processes and variables included in the theory [6]. According to Model is an abstraction of reality, a simplified representation of some real world phenomenon [7]. A model is a plan, representation, or description that describes an object, system, or concept, which is often in the form of simplification or idealization. The shape can be a physical model (model, prototype form), image model (design drawings, computer images), or mathematical formulation.

Learning is an attempt to organize the external environment to influence students' processes [8]. Quality learning is learning that is able to activate students' internal processes so that internal learning outcomes occur. Therefore, understanding the learning process that begins with the lesson plan is very important to accommodate in choosing and planning a lesson for students.

Multimedia is a combination of various media in the form of text, images, graphics, sound, animation, video, interaction and so on, which has been packaged into a digital file, and used as a messenger to the public [9]. Multimedia is a display designed by designers so that its appearance fulfills the function informing the user to the message [10]. Based on those opinions, it can be concluded that multimedia is a combination of various media (file format) in the form of text, graphics, audio, and interaction and is used to convey messages / information from the sender to the recipient of the message / information. The teaching and learning process is a process of creating an environment where the learning process occurs. The most important thing in learning is

how students learn in an effective environment. It is very important to see how the environment was created to present the components of learning so that gradually can shape the students character. Multimedia learning can be interpreted as a multimedia application used in the learning process, in other words to connect information (knowledge, skills and attitudes) and can stimulate students' choices, feeling, concerns and willingness, so that the conscious learning process occurs to achieve learning goals and is under controlled [11].

Gymnastic exercise is a sport that relies on body flexibility in which all movement skills are carried out on the floor with a mat without involving other tools. Gymnastics exercise is one of the sports that rely on the activities of all limbs, both for gymnastics itself and for other sports. That is why gymnastics is also called basic exercise. It refers to the motion that is done by an integrated combination and incarnates from each part of the body member from the ability of motor / motion components such as strength, speed, balance, agility, and accuracy [12].

II. METHOD

The Research and development proposed by Borg and Gall consists of ten steps, including : (1) Conducting research and gathering information (literature review, subject observation, preparation reporting main problems). (2) Planning (defining skills, formulating objectives, determining the sequence of teaching, and small group trial). (3) Developing initial product (preparation of teaching materials, preparation of handbooks and evaluation instruments). (4) Conducting preliminary field tests (using 6-12 subjects). (5) Revising the main product (in accordance with suggestions from the results of the preliminary field test) . (6) Conducting mainfield test (with 30-100 subjects). (7) Revising the final product . (8) Writing a report in a journal article, collaboration with publishers for commercial distribution [13].

The data used in the development of this learning is qualitative data because the data obtained is expressed by sentences and not by numbers. While quantitative data is obtained by changing qualitative to quantitative data by giving a score on the qualitative data. The instruments used in this study were using questionnaires for needs analysis, media expert, gymnastic expert, physical education learning expert and student assessment results (in phase I trials and phase II trials). The instrument for identifying needs in this study was prepared with the aim to obtain student opinion data towards teaching materials they have used or are currently using, and what teaching materials they want. This instrument is also based on the concept of evaluating teaching materials. The initial and primary field test instruments are prepared based on the evaluation concept of the students .

Below are the formula to evaluate responses or evaluations from gymnastics floor exercise experts / trainers, physical education learning experts and learning media technology experts. This analysed used percentage formula [12].

$$P = \frac{X}{X_i} \times 100\%$$

Information:

- P = Percentage of evaluation results of trial subjects
 X = Number of answers of trial subjects
 Xi = The maximum number of answers of evaluation aspect
 100% = Constant

III. RESULT AND DISCUSSION

The product of this research in the form of multimedia-based leaning model of gymnastics floor exercise can be described as follows:



Fig. 1. Multimedia design of gymnastics learning

The feasibility of this model is done by expert testing to provide an assessment and input so that it meets the feasibility criteria theoretically and empirically. Based on the data and responses collected from instructional technology experts, gymnastics floor exercise experts, and physical education learning experts, there are several parts of the product that need to be revised. This is done to further optimize the benefits of development for students.

A. Data Analysis from Gymnastics Exercise

Based on the results of the evaluation analysis, it is found that the maximum number of scores (ΣX) is 180 and the number of scores obtained (ΣX_1) is 145. So, the percentage is 80.56 %. Based on the results of the analysis that has been carried out on the response/assessment of gymnastics exercise experts, the result is 80.56 %, from the specified criteria and it can be said that this gymnastic learning multimedia meets feasibility criteria (80% - 100%) so that it can be used and applied in the implementation of gymnastics exercise lectures.

B. Data Analysis from Physical Education Learning Experts

Based on the results of the evaluation of gymnastics exercise experts it is found that the maximum number of scores (ΣX) is 180 and the number of scores obtained (ΣX_1) is 160. Thus, the percentage is 88.89 %. Based on the results of the analysis that has been carried out on the response/assessment of the learning experts, the result is 80.89 %, from the specified criteria and it can be said that this gymnastic learning multimedia meets the feasible criteria (80% - 100%) so that it can be used and applied in the implementation of gymnastics exercise lectures.

C. Data Analysis from Media Experts

Based on the results of the evaluation of instructional technology experts it is found that the maximum number of scores (ΣX) is 120 and the number of scores obtained (ΣX_1) is 97. So, the percentage is 80.83 %. Based on the results of the analysis carried out on the response / assessment of media experts, the result is 80.83 %, from the specified criteria and it can be said that this gymnastic learning multimedia meets the criteria of feasibility (80% - 100%) so that it can be used and applied in implementation of gymnastics exercise course.

D. Small Group Trial Results

It can be concluded that the learning model of multimedia-based gymnastics exercise in small group trial gets a percentage of 78.6% and in the Good category, so that it can be used for large group trials.

E. Large Group Trial Results

It can be concluded that the learning model of multimedia-based gymnastics exercise in large group trials gets a percentage of 85.6% and in the category of Very Good, so it can be used for learning in students majoring in Physical and Health Education.

This research produces multimedia products to facilitate Physical and Health Education students in learning basic gymnastics skills. Multimedia as a learning media that is more effective and efficient in learning. Multimedia learning media is anything that can be used to channel information from instructors to students so that it can stimulate students' thoughts, feelings, concerns, and interests, and finally can make students carry out learning activities efficiently and effectively [14]. It also delivered media function was twofold First, the psychological functions: (a) attentive function, learning media can increase students' attention towards learning material, (b) effective function, learning media can increase students' acceptance to stimulus, (c) cognitive function, through the media will be obtained a picture of the object faced, whether people, objects, or events, (d) imaginative function, media can enhance students' imagination which is enough creativity and fantasy power, (e) motivational functions, with media, teachers can improve and encourage students' awareness to be actively involved in learning. Second, the socio-cultural function, from different backgrounds and experiences in students, while the curriculum and learning materials are determined, the learning media can overcome because it has the ability to provide the same stimulus". From this understanding, it can be concluded that the learning media is everything that is used as communication or to convey messages, information / learning materials so as to stimulate students' attention, interest, thought and feeling in learning activities to achieve certain learning goals, in this case basic skills of gymnastics exercise for Physical and Health Education students.

The advantages or benefits of learning multimedia as follows: 1. Multimedia allows users to remember text because it presents text accompanied by images. The presence of

images in text will increase the user's memory. 2. The existence of animation in multimedia can be used to attract students' attention if it is appropriately. 3. According to the quantum learning theory, students will have learning modalities that are divided into three things, namely visual, auditory, and kinesthetic [15]. The existence of multimedia in the learning process will overcome learning problem because every student has different learning styles in which multimedia learning can accommodate those differences. In general, the benefits of multimedia learning make the learning process more interesting and interactive. It also improves the quality of teaching and learning activities which can be carried out anywhere and anytime. Furthermore, students can have positive attitude towards the teaching and learning process. Therefore, multimedia learning provides solution to various problems, like different learning styles, so that it will facilitate the learning of gymnastics exercises.

IV. CONCLUSION

Based on the data obtained from the results of field trials, findings, and discussion, it can be concluded that: (1) This study produces products in the form of a multimedia-based learning model of basic skill of gymnastic exercise to students majoring Physical and Health Education in State University of Malang which provides clear and easy to practice materials, such as: forward roll skill; backward roll skill; tiger jump skill; cartwheel skill; round off skill; headstand skill; handstand skill. All of these skills or movements are designed with systematic stages and there are also ways to help them. (2) With this multimedia, students can learn and implement gymnastics exercise practices effectively and efficiently. (3) With this multimedia, student can master the theory and practice of gymnastics floor exercise quickly and correctly. (4) Based on the validation and evaluation of

experts (gymnastics experts, physical and health education experts, and media experts), the products produced are suitable for use in the learning process to Physical and Health Education students.

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