

# Learning Media for Vocational Education

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**Abstract**—The aims of this article are to examine the extent of the role and development of learning media in vocational education, focusing on the aspects that must be considered in developing learning media, evaluation of learning media, learning media for vocational education in the form of simulators. The method used in this study by analyzing documents and articles sought through electronic database search engines, among others, Elsevier, Google Scholar, Taylor & Francis, Sagepub online, and ScienceDirect, obtained as many as 42 documents but 17 were used in this study document. In conclusion, vocational learning media developed in various types include the development of media in the form of application software, interactive media, simulators and trainer kits. The role of learning media in vocational education is very important, because in essence vocational education focuses more on the ability of skills so that it requires learning media academically and practical approaches that can accommodate learning.

**Keywords**—*learning media; vocational; education*

## I. INTRODUCTION

The issue of education is a matter that we must concern continuously, especially in terms of achieving educational goals. Achieving educational goals requires the role of the teacher, the availability of learning resources, media (practicing tools) and interaction between teacher and students [1].

Learning media is an equipment used to help communication in the learning process [2]. Media can facilitate student's communication, both with teachers and with other learning resources [3].

The use of media is one of the most important components in teaching and learning process, it is important to attract student learning interest and increase stimulus to be more active in learning [4]. Learning something without being interested in the topic or object being studied will not give the best results [5]. therefore to generate and increase student learning interest can be implemented by giving different touches in the learning process that is by using media in the learning process .

Learning media are widely used at all levels of education, in vocational education requires academically and practical approach so that it requires an instructional framework, learning media that can be used in vocational education can be online or offline media [6]. The use of learning media (simulator) has several benefits, such as, students can implement or practice their knowledge, students can observe

and carry out their practicing in the next work world, students have the opportunity to develop the skills and knowledge needed in the world of work [7]. Therefore, in the vocational learning process learning media are needed that can accommodate students' skills and knowledge just like in the real world work.

This article aims are to examine the extent of the development of learning media, the focus of the discussion on aspects that must be considered when developing learning media, and the extent to which the development of learning media in vocational education, especially automotive competence.

## II. THEORETICAL FRAMEWORK

### A. Development of Learning Media

Development of learning media, from year to year continues to develop, the development of learning media aims to help students practice / apply the theories learned to improve their skills [8].

In the process of developing the media there are several theories that can be adopted.

1) *Behaviorism's theoris*: The research subjects about increasing knowledge, changing behavior (skills), and creative thinking in the learning process were mostly carried out by researchers, but from the many subjects studied in the learning process, it was believed to be influenced by determining the design of learning models and learning media selected in the process learning that creates an understanding of knowledge, attitudes and behavior of students [9], so that it can be applied [10], to create knowledge and supporting aspects so that it can create knowledge and mentality [11], then from that, the above theory is taken as a micro theory that can be used as a reference to determine a series of procedures carried out in the learning process that can improve the quality of learning. the role of learning media in this theory is to create knowledge, skills and attitudes during the learning process.

2) *Creativity thinking theoris*: Learning by doing is the most popular and effective learning process [6] learning by practicing can form vocational skills and give real experiences to students both working in groups or even individuals so students know step by step in doing things right. Most agree that doing learning, which focuses on the

construction of knowledge based on the experience of previous lesson [12,13]. The role of learning media in this theory is as a mean to facilitate students in the learning process by doing to practice skills and construct knowledge.

#### *B. Simulator as a Vocational Learning Media*

Simulator is a learning media that can be used to overcome problems in the learning process [14]. We believe that simulator can replace many expensive practicing tools used in workshop, simulators can be used in many contexts, including simulator technology for working optimization, safety working, testing, training and learning, therefore simulation devices are constantly being developed and now it is an important tools in training and learning. [15].

Development of simulators has been developed in many countries, such as KentRidge Instruments Pte Ltd., Singapore, has developed KRi Dual Process Simulator. MPDT electronic simulator developed in Vietnam, which can configure linear and nonlinear process simulations for the purpose of helping researchers and students in designing and testing their controllers. [15].

### III. METHOD

The step used to explore learning media for vocational education is by analyzing documents. In this analyzing, documents and articles were searched in electronic databases such as Elsevier, Google Scholar, Taylor & Francis, Sagepub, and ScienceDirect with key words on electrical simulators, education tools, media instructional, media development, educational media, learning media, electrical. By these total documents in the form of journals downloaded as many as 42 documents, the author for this article is using 17 documents.

The process of searching documents with the keywords education tool, instructional media, development media, educational media aims to find a variety of views, results and theories in developing good learning media by paying attention to several developing aspects and theories, searching with electrical simulator keywords, electrical aims to find out the extent of the development of learning media related to vocational education especially in automotive electrical systems.

### IV. RESULTS AND DISCUSSION

This discussion will review a number of subtopics regarding the learning media of vocational education, such as of 1) aspects that must be concerned in developing learning media, 2) Evaluation of learning media 3) media for learning vocational education in the form of simulator especially automotive electrical competencies.

#### *A. Aspects that Must be Concerned in Making Learning Media*

Development of learning media must pay attention: (a) Pointing the competencies; (b) Pointing learning models to create learning result effectively; (c) Learning media must be designed as the equipment in the real world; (d) Learning media must be made suits with curriculum and learning goals;

(e) Learning media must be able to stimulate to improve understanding and skills [16]; (f) Learning media must attract students and easy to use.

In achieving learning goals, it is not enough to count on learning media, but the role of the teacher as a facilitator is also needed as an instructional source in designing learning systems.

#### *B. Evaluation of Learning Media*

Learning media that has been developed, must be evaluated not only by its product but also of its easy using. One of ways that can be done to evaluate instructional media is done by questionnaires focusing on the effectiveness of learning, collecting data from sampling a group of 100 Rajamangala University students in the 2014 academic year with random sampling methods [6]. This evaluation aims to make learning more effective, use media that is easier, and more convenient to use by students.

#### *C. Media for Learning Vocational Education in the Form of Simulators for Automotive Electrical Competencies*

The last few years the automotive world has continued to develop, especially in terms of electricity system management [7]. Following developments, this is a big problem in learning, caused by the cost of relatively expensive automotive learning equipment. On the other hand the vocational learning goal of students are required to master knowledge and skills.

The delphi automotive power simulator model was developed in Poland. This simulator presents a vehicle electronic system model that was created in collaboration with the Delphi Technical Center, Krakow, in Poland. Distributed embedded software systems where independent microprocessor systems communicate together using different communication protocols. This model illustrates the function of vehicle electronic systems with high integration and modern technology [7].

### V. CONCLUSION

The conclusion from various literature reviews that vocational learning media developed are various types including media development in the form of application software, interactive media, simulators and trainer kits, from several retailers which show that the role of media in learning can influence student learning outcomes and positive responses from students. Learning using simulator media can create a more interesting learning process, can improve learning outcomes both in terms of knowledge and skills [17].

Development of simulators as a vocational learning media must concern to several aspects, developed with several stages starting from determining the concept (goal), design stage, material / material collection, manufacturing stage, testing phase.

The role of learning media in vocational education is very important, because in essence vocational education focuses more on the ability of skills so that it requires learning media that can accommodate knowledge and skill.

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