The use of visual multimedia in motor cycle mechanics training for deaf students

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Abstract. A common problem in this study is that deaf students have communication problems in learning and students experience problems how to communicate with teachers. The purpose of this study is expected to be able to find out that the use of visual media in motorbike mechanics training can help the development, abilities and knowledge of deaf students. The procedure carried out was to analyze the communication skills of deaf students by interviewing deaf students by one researcher and one linguist. Five deaf students participated in this study. They are Deaf students with the classification of Profound Hearing Loss. Stage one, the Instructor provides learning without using visual multimedia. The second stage, the instructor gives an evaluation of learning to students. The third stage, is taking interview data related to how their perceptions of the learning process, namely what media should be used for deaf students. The results show that the students interviewed stated that visual multimedia with full language is very useful if used at every opportunity, be it during motorcycle training or other learning.

1. Introduction

Special Education is education for students with disabilities or special needs that is having a difficulty level in following the learning process due to physical, mental, intellectual or social disorders [1]. People with hearing impairments in developing countries have not received special attention. But there are some institutions that pay attention to them [2]. Deaf students have communication problems in learning, this is reinforced when they attend educational institutions that do not have facilities that meet their needs [3-5]. Teachers, educators, instructors and those working in the field of education for deaf students should realize that they absorb phonological information through visual speech into their representations and look at the lips when we speak, in order to help them understand learning [6]. The development, ability and knowledge of students in the vocational field are influenced by vocational instruction [7]. The use of multimedia technology has a positive impact on learning, so that later multimedia technology can be adopted to have a positive impact on learning [8]. The purpose of this study is expected to be able to find out that the use of visual media in motorbike mechanics training can help the development, abilities and knowledge of deaf students.

It has been observed that deaf students face challenges in their educational efforts, especially in reading and writing skills [9]. The results show that deaf children are late in reading compared to
children who hear, meanwhile if both ears are deaf and adults who are deaf have equally good performance when tasked with making decisions [10].

Non-formal vocational education can reach them (the community) today, thereby increasing empowerment by equipping skills and knowledge [11]. The results of previous studies of vocational education and training graduates in countries oriented to general education, vocational education and training graduates are more likely to work, but job premiums are faster from time to time [12]. The author hopes that with vocational education and training on motorcycle mechanics, the deaf can gain knowledge to face the next life, that is, they can get a job and work professionally.

A common problem in this study is that deaf students have communication problems in learning as well as vocational education is associated with much lower income once workers enter the age of 30, and this loss is greater among women than men. While vocational education protects against unemployment [13]. There is no tool that can help improve deaf students in understanding various aspects and to express their views, thoughts, and ideas [14]. The analysis shows some interesting technological solutions are currently in research and development to provide digital platforms in general, but some critical challenges must be solved and effective integration [15]. People with special needs are members of the community who have the right to enjoy communication with the external environment in an easy and professional way [16]. Deaf children have deficits in understanding wrong beliefs because of their language disorders [17]. Maybe he still hears a loud sound, but he is more aware of the sound through its vibrations than through the pattern of sound [18-20]. This research is very important to be done so that it can provide a solution to the problems faced by the deaf how the use of visual multimedia in motorbike mechanics training for deaf students can be considered to be applied as a tool in helping education, learning or training for deaf students.

2. Method

Five students participated in this study. They are male students with a range of age 15-18 years, social conditions, educational backgrounds, and areas of origin that are different from the Prof Ound Hearing Loss classification, which is a patient who has a hearing loss of more than 90 dB.

The initial stage the instructor provides learning without using special visual multimedia, the learning module is given to them and the instructor performs a motorcycle repair technique in front of the students. The second stage instructor gives an evaluation to students by instructing students to do work in accordance with the modules that have been given and the examples that have been given to students.

The third stage is interview data retrieval; three experts play a role when taking data. Interviews with deaf students were conducted by one researcher who was accompanied by one expert linguist and one person was assigned to document the research activities. The question asked is how their perceptions of the learning process, what media should be used, what kind of visual multimedia they think is very important to apply and several other questions related to the use of visual multimedia for deaf students.

3. Analysis

3.1. Analysis of student learning outcomes

Researchers process and analyze data based on the results of evaluations conducted by the instructor. Evaluation processing is carried out without penalty / penalty with the formula:

\[ S = R \]

Where:

\[ S = \text{Score obtained} \]
\[ R = \text{Work done right} \]

This assessment is carried out after getting the results of the contract. Assessment can be done with the following formula:

\[ N = \frac{S}{S_{\text{max}}} \times 100\% \]
Where:
\[ N = \text{Student Value} \]
\[ S = \text{Score obtained by students} \]
\[ S_{\text{max}} = \text{Maximum score} \]

3.2. Interview analysis
Analysis was conducted on the results of interviews that have been conducted, answers from students become material to be used as a reference for conclusions.

4. Results
The results of learning done without using special visual multimedia make them confused in understanding learning even though there are pictures and writing. They tend to understand only through the movements made by the instructor in doing mechanical work. Boredom that arises in learning is also seen when getting sleepy and does not feel enthusiastic about the training material delivered.

The findings of student learning outcomes taken can be seen in the following table:

| No | Name | Pretest Score |
|----|------|---------------|
| 1  | A    | 40            |
| 2  | B    | 30            |
| 3  | C    | 40            |
| 4  | D    | 35            |
| 5  | E    | 50            |

| Average Rating | 39 |

The data obtained in this study in the form of learning evaluation data without the use of visual multimedia specifically language. The average value obtained by students is 39. Based on these figures, it can be ascertained that the results of the training did not meet the criteria for mastery learning with a minimum limit of mastery learning outcomes of 80.

The interviews were conducted with over twenty (20) simple questions designed to investigate whether visual multimedia with language is helpful in motorbike mechanics training. The question is intended to find out whether the subject really needs visual multimedia with language or not. The results showed that deaf students with the Los Profound Hearing classification require visual multimedia with language when they are doing mechanical motorbike training. Interestingly, the students interviewed suggested that visual multimedia with full language was very useful if used at every opportunity, whether during motorcycle training or other learning. But the students complained about the existence of visual multimedia with sign language which was too fast in translating oral language into Sign and also the screen in Sign language contained in Multimedia Visual was too limited so students had difficulty seeing it, they suggested that the translator of Sign was not too fast in translating oral language into language and make visual translation of language can be seen by them. Based on the results discussed with deaf students with the experts who interviewed them, Sign linguists have agreed that the idea of making visual multimedia with interpreters of such languages is beneficial for deaf students.
5. Discussion
This study examines the adoption of visual multimedia technology for learning motorbike mechanics for deaf students. This study also tests students to find their strong contribution in determining the suitability of visual multimedia, so that educators can offer the use of visual multimedia technology with language to provide experiences or provide information for deaf students, in order to improve the quality of learning. In the context of education, educators can further offer the use of visual multimedia technology to fit the object that is the focus of learning [8]. Apart from the benefits of multimedia technology for learning, previous research has presented different results for its effectiveness. Several studies have explained that the use of visual multimedia leads to better learning outcomes [21,22]. But other researchers find that their use is not always effective for learning [23, 24]. But the findings in this study, might overcome conflicting results.

The results show that visual multimedia with full language is very useful if used at every opportunity, be it during motorcycle training or other learning. But visual multimedia with Sign language must also adjust the tempo when translating into Sign language. Experts in sign language teaching have agreed that the idea of making visual multimedia with interpreters of such languages is beneficial for the deaf. In addition, this study found a strong relationship between technological compatibility and perceived benefits. Thus, this research becomes an interesting future research to explore and apply the characteristics of diverse visual multimedia technologies, which can contribute to the suitability of the object literature of visual multimedia technology users.

6. Conclusions
Visual multimedia is very much needed for people with hearing impaired special needs in every opportunity, especially in an education or training. Characteristics of visual multimedia must also be adjusted to the needs of deaf students. The use of visual multimedia with the sign language it is very useful for motorcycle mechanics training.

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