Multimedia Use For Beginner Level of Teaching Languages For Deaf Children: Study in Special Schools in Surakarta

K Saddhono¹, A Amalia², I K Sudarsana³, and A Indahingwati⁴

¹Universitas Sebelas Maret, Surakarta, Indonesia
²Islamic Institut of Miftahul Ula Kertosono, Ngajuk, Indonesia
³IHDN Denpasar, Indonesia
⁴STIESIA Surabaya, Indonesia

¹kundharu_s@staff.uns.ac.id, ²ainnamalia@gmail.com, ³iketutsudarsana@ihdn.ac.id, ⁴asmaraindahingwati@stiesia.ac.id

Abstract. Education for children with special needs, in Indonesia language known as Anak Berkebutuhan Khusus or ABK, at an early age plays a significant role in triggering their abilities to communicate by using sign language. This paper discusses the results of research on the development of sign language learning media for ABK with age range 6-9 years. The stage of designing learning media includes the SDLC method (System Development Life Cycle). The result of the design is a Multimedia Application for Introduction to Sign Language for Deaf Children age 8-12 years in the form of CD-ROMs. The first is the CD-ROM for PC / computer which contains Indonesian language learning element, examples of simple sentences, practice questions and puzzles, and each item includes a sign-language video, the second is in the form of VCD containing Indonesian language learning material and in each element comprises sign language video.

1. Introduction

Children with Special Needs (ABK) (Heward) are children with unique characteristics that are different of children in general whom not always showing mental, emotional or physical disabilities [1]. Among those included in the ABK are: visual impairment, hearing impairment, mentally disabled, quadriplegic, insanity, learning difficulties, behavioral disorders, gifted children, children with health problems. Another term for children with unique needs is special children and disabled children. Because of the characteristics and barriers that are owned, ABK requires unique forms of education services that are tailored to their abilities and potential, for example for blind people they need modification of reading texts to Braille (embossed) and deaf communicate by using sign language (body language).

Children with special needs are children with different characteristics of children in general because they experience mental, emotional, and physical abnormalities. Children with special needs include visual impairment, hearing impairment, mentally disabled, quadriplegic, insanity, learning difficulties, behavioral disorders, gifted children and children with health problems. Educating children with special needs is not easy to do. There needs to be a high level of patience, intensive care, understanding children psychology, and special abilities to help the child's growth and education and the need for collaboration...
with parents of children with special needs [2]. One of the special skills in question is like mastering Braille writing for blind and mastering sign language for the deaf, and others. Special School is a place where children with special needs get the education.

This article will examine the use of multimedia for ABK, especially for deaf children. Deaf is someone who cannot understand the language of conversation. Disability of hearing since birth or caused by accident or damage to the hearing nerve due to illness or accident. Hearing impairment can vary from one another from being able to listen to a little to not being able to understand at all. Hearing impairment cannot be seen. Therefore, sometimes teachers forget that their students experience hearing impairment but treat them like regular students [3].

Deaf is someone who has a lack or loss of ability to hear either partially or entirely due to the failure of some or all of the hearing instrument. Deaf children cannot use their hearing aids in everyday life, this has a complex impact on their lives, especially on language skills as an essential communication tool [4]. The world of children with individual needs, especially children with hearing impairment, is widely known as a segregative world, where deaf children only go to different schools which on average have almost the same diagnosis. In inclusive schools, these deaf children will be introduced to the real world where students' backgrounds are so diverse that heterogeneity feels very close.

Successful inclusive education for mute and deaf children also depends on how they can adjust emotionally and socially to the environment [5]. A child who does not have the readiness to study in an inclusive school will experience obstacles in undergoing the learning process. Readiness factors and learning support media are factors that influence the learning process to have the following definition; readiness is a willingness to provide a response or reaction. Desire arises from within a person and also relates to maturity because maturity means readiness to carry out skills. This readiness needs to be considered in the learning process because if someone is learning and has willingness, the learning outcomes will be optimal [6]. What one of the learning supports for deaf students is the presence of multimedia that can be used in education. Multimedia in a learning activity for deaf children has an extensive function [7]. These include being an intermediary, communicator, and to disseminate ideas, thought, and opinions in learning so that what is conveyed by the teachers can reach the intended recipient who is the deaf students. Deaf children have limitations in speaking and also listening so that learning media is in the form of the latest multimedia as a means of supporting learning for deaf students [8]. Multimedia that can be developed in learning for deaf parents in the form of teaching media designed for students in Special Schools in Surakarta. Learning design uses the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model.

2. Method
This research was included in the research development because the results of this study were carried out to produce specific products and test the effectiveness of these products when it was used. The method used in this study was the ADDIE model in the form of Analysis, Design, Development, Implementation, and Evaluation. The subject of this study were deaf students in Surakarta Special School located in Jl. Cokak X, Sidorejo, Sambeng, Mangkubumen, Banjarsari, Surakarta, Central Java. The study objects were deaf students contained ten children age 8-12 years.

3. Results and Discussion
The product of this research is the development of learning media design for students in Surakarta Special School who were deaf. Learning design used the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model. In the initial stage of the research, it was preceded by an analysis of several components which were the target of the study and continued with the next steps.
Exposure to these stages in the first stage of the ADDIE model was to analyze the components that would use the learning design, namely students, teachers, materials, and learning facilities.

1. Student; special needs students in a deaf class of 10 people were gathered in one type. All students in this class were categorized as children who could not hear at all. In general, all students were familiar with computers because in the classroom there were already learning materials about computers, including the internet. As many as 8 students among the 10 deaf students at home were also familiar with the internet and equipped with laptops by their parents.

2. Teacher; teachers already had an undergraduate education background in the Special Education Study Program that was appropriate to the needs of the special needs students. More depth, teachers had not mastered the problem yet because they only acknowledged with special needs in general. There were not many innovations developed by teachers but teachers were fast-learners and keen to learn new things. This problem encouraged teachers to continue improving themselves with modern sciences.

3. Material; the material taught to deaf students was the basis of language skills which include listening, speaking, reading, and writing. The material was following the curriculum that applies to special needs students age 8-12 years. Although in the learning process there were already lesson plans in the actual classroom the implementation of lesson plans were adjusted to the situation of the school and students. As in the class used as the object of this research study had constraints on hearing instruments so in learning related to listening skills will be adjusted to the class conditions.

4. Facilities; The facilities available at the school in supporting the learning process for the deaf students were computer laboratory and a room equipped with multimedia facilities. Many other videos and animations were used as learning media in class.

Based on this analysis it can be concluded that in the learning process in the classroom, between the teacher and the special needs students, learning media is needed so that the teaching and learning process at the school can run well, smoothly, and improved. The teacher provided pictures and videos to deliver language skills learning for deaf students[9]. The instructional media developed by the teacher must be able to raise the desire of deaf students to always actively produce language both oral and written. In realizing the learning media, it is necessary to go through several stages, namely the development plan, learning design, and the implementation of learning media that will be used in the teaching and learning process.

In the media design stage begun with playing a video that described the daily activities that students usually do. In addition to playing videos of daily activities, it was also supported by a power point display that explained some of the daily operations of students. Presentation media provided a subject. The presentation of each exhibition contained three groups of presentations, namely the introduction of new vocabulary about objects used in the issue, vocabulary of the main theme of the discussion, and the new vocabulary in the sentence.

The second activity after designing learning media was to prepare learning designs utilizing learning media that have been created. The learning design made is as follows

| Activity          | Description                                           | Time       |
|-------------------|-------------------------------------------------------|------------|
| Opening           | 1. Pray                                               | 15 Minutes |
|                   | 2. Presence checking                                   |            |
|                   | 3. Conduct initial communication as an opening greeting|            |
|                   | 4. Turn on a computer as learning media                |            |
The learning design activity was carried out as the main activity of learning as an implementation of the teaching and learning process. The overall events of the learning design, in addition to learning, and learning implementation had been discussed with material experts and instructional media experts. Experts argued that learning design, learning design, and learning implementation were suitable for the needs of deaf students.

After the activities were carried out correctly, there needs to be a follow-up in the form of development to improve the results of the media design and learning design until the implementation of the learning that had been produced. The design of knowledge was improved by discussing with the research team, the teacher or assistant and the class teacher in a special school. Besides, students were also involved in this discussion to provide input related to the acceptance of the learning media used. Improvement of learning design, learning design and implementation of learning can be tested but must consider the characteristics of various study objects. Therefore, the application of education can be carried out with improvements from previous practices that have been carried out by conducting joint reviews and evaluations. An overview of learning in the classroom with deaf students for writing activities can be explained at the main stage of learning.

The following picture is one of the activities carried out in the morning. This activity is carried out before students going to school. Figure 1 in the form of pieces of images taken from the learning videos. In this activity, students were expected to be able to find vocabulary related to the action and make sentences based on the

| 5. Conduct apperception | 65 Minutes |
|-------------------------|------------|
| **Main Activity**       |            |
| 1. Student operate computer |          |
| 2. Students open program prepared by a teacher | |
| 3. Teacher play video related to morning activity from waking up to going to school. | |
| 4. Students watch the video and do exploration together with a teacher | |
| 5. A teacher plays power point related to the main activity in the morning | |
| 6. Teacher gives video clip of morning activity (breakfast) | |
| 7. Students make vocabulary list related to morning activity | |
| 8. Teacher gives a task to make a sentence based on the picture | |
| 9. Students' results are shown and discussed together in a classroom | |
| **Closing**             |            |
| 1. Teacher gives the conclusion of learning about morning activity | |
| 2. Teacher and students reflect together | |
| 3. The learning activity is closed with prayer and greeting | |

| Table 2. Sentence created by deaf students |
|--------------------------------------------|
| **No** | **Name** | **Sentence** |
|--------|----------|--------------|
| 1      | AD       | Adik makan   |
Based on the sentences created by students it shows that most of them had had a subject except in the conviction produced by KS which did not have an issue. Existing topics also vary, namely Adik, Saya, Aku, Eko, Andrian, Dia, and Ais. The choice of different topics shows their expressions. For example, the choice of saya and aku illustrate that what was in the learning media was possessed by them. There was a closer expression by mentioning the names such as Eko and Adrian. There were also expressions experienced by students such as Ais and Adik. This wordsarouse because of the learning media that appeared as picture of the little girls, such as DL who has the younger sister at home and SS who has a younger sister named Ais. The furthest expression was the choice of words of dia written by PU. KS in the preparation of the sentence did not bring up the subject and just mentioned the phrase makan according to the picture on the learning media.

In the preparation of sentences in the predicate section, there were also many variations that appeared. The main sentence expected was makan but the sentences that appeared were makan, sarapan, and maem. Writing the word makan has the variety of the phrase form that is maem which was written by SS and JM. There were sentences which did not contain makan that appeared, namely the word maem written by PU. This is due to the habit of PU which always says maem when eating. There were additional forms in the form of objects and tool information. The addition of objects in the way of words of nasi written by AK and the acquisition of information was dengan sendok written by BB.

4. Conclusion
Readiness factors and learning support media are factors that influence the learning process to have the following definition. Readiness is a willingness to provide a response or reaction. Base on the problem, the result of the design is a Multimedia Application for Introduction to Sign Language for Deaf Children age 8-12 years in the form of CD-ROMs. The first is the CD-ROM for PC / computer which contains Indonesian language learning materials, examples of simple sentences, practice questions and puzzles, and each element includes a sign-language video, the second is in the form of VCD containing Indonesian language learning material and in each aspect includes sign language video.

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