

## The Interactive Multimedia Development of Beginning Reading for Students with Hearing Impairment

Khanif Thoifatul Maulidah, Mohammad Efendi, Sikkabuden

Universitas Negeri Malang, Indonesia  
E-mail: hanifthoifa2806@gmail.com

**Abstract:** The children with hearing impairments have the difficulty of receiving information from outside, so the students need an interactive media for beginning reading to facilitate their understanding and tailor to their needs. This research and development used Lee & Owens (2004) method consists of assessment/analysis, design, development, implementation, and evaluation. The validation score was 94% from media experts, 80% from material expert, and 80% from practitioners' scores. While the field trial results were obtained 100% that reach the Minimum Completeness Criteria (Kriteria Ketuntasan Minimum/KKM) with highly effective qualification. Based on these data, it has been shown that interactive multimedia was quite valid and very effective to be used in learning. Suggestions for further researchers are expected to develop the learning media on subsequent material competence.

**Keyword:** Hearing Impairment, Interactive Multimedia, Beginning Reading

Education that universal and comprehensive is very important for human being. Education is inseparable from the word learning and knowledge. Education never views a person in any particular viewpoint, whether physically or economically. As for everything that is done both formally and nonformally contained elements of educational value. Even simple things that are often considered underestimated by some people have a broad meaning in education. Education is entitled to be obtained by anyone, one of the targets is children with hearing impairment (deaf). The hearing impediment has enabled the deaf child to experience delays in receiving information from outside. Children with hearing impairment often have poor speaking or communicative barriers. It is based on the implications or impact of hearing in academic. One of them is difficulties in understanding the language, so they can not speak properly. The statement indicates that hearing impairment is not speaking impairment. Hearing impairment is categorized into 3 groups such as conductive, perspective and mixed hearing impairment (Efendi, 2010). The category refers to the extent of inability to hearing impairment.

The same idea is put forward by Purtanto (2015), "Deaf is the inability to speak, which raises the opinion that the child is not able to hear, so that, it is difficult to communicate verbally". The inability to speak to children with hearing impairment is due to inability to hear. It allows the hearing-impaired child to distinguish between the characteristics of the various sound sources which are then applied in spoken language. The existence of a learning process in accordance with the needs of children with hearing impairment can facilitate receiving and expressing opinions during the learning process takes place.

The learning process that takes place continuously, can not be separated from the use of methods or instructional media as a supporter of the success of a learning process.

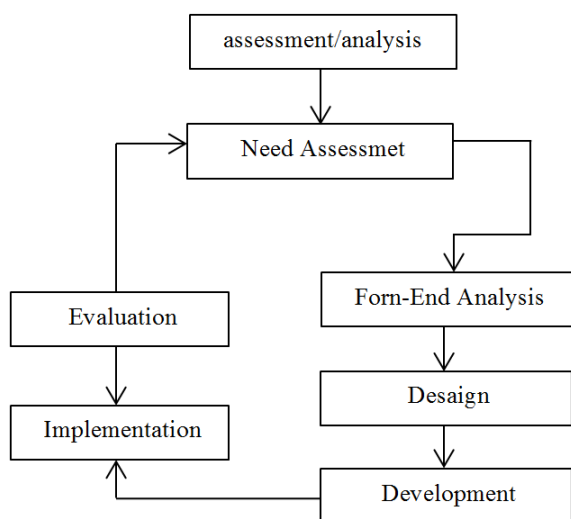
In globalization era nowadays, anything is easily accessible wherever and whenever its condition. It can not be denied that the current technological developments are growing very rapidly. Everything that is done can not be separated from the influence of technology. Technological advancements are increasingly growing, often making some people become addicted or urged one's need to use technology as a daily necessity both formally and nonformally.

As has been discussed in the above statement that multimedia is part of the development of technology that combines one another in unity and makes functions properly. Multimedia can make it easy for users to pour their ideas in the form of imaginations in education, non-education, etc.

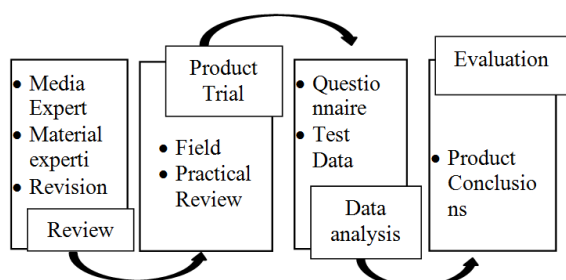
Multimedia is one of the learning media that utilizes a special device in the form of, animation, image, text, and audio. Based on the statement (Darmawan, 2011) suggests that multimedia can be viewed as a computer utilization in creating and combining text, graphics, audio, video and animation by combining various features that allow users to navigate, interact, create, and communicate. the existence of learning media that support and appropriate for deaf students' needs and indirectly the students can interact well through the multimedia.

Through the displayed multimedia, the students can learn to read the beginning. Reading is one of the most basic learning process activities. Every day, a person is faced with different forms of letters, symbols and writing different (Sidiq & Fauziah, 2016).

**Figure 1. Model of Lee & Owens (2004) Development Procedure.**



**Figure 2. Model of Product Trial Procedures**



Reading is not only recognize or know the form of letters or symbols, but also emphasis on the pronunciation and understanding of the series of letters and symbols, making it easier for readers to understand the meaning contained in it.

Based on these observations, there are problems related to reading skills, especially for students with hearing impairment in the class I. Some students experience obstacles in pronunciation. For example, the pronunciation of consonants whose characteristics are almost identical such as (b, d, and p), (j and c), (s and z). Some of the letters are naturally almost the same form and pronunciation, so that, the child with hearing impairment has difficulties in distinguishing the nature of the pronunciation. Class I is a basic class where new students start learning to write and recognize letters.

In this research and development, the product was produced a interactive multimedia in the form of CD (Compact Disk) consisting of audio, visual, animation, text. The results of previous research indicate that interactive multimedia is considered feasible with a score of 3.27. The result of the material validation test was obtained an average of 3.75 including the learning media test and the feasibility test of interactive

multimedia product as a whole is declared feasible. The conclusion is an interactive multimedia learning product development for the appropriate and effective early reading skill for students in reading difficulties (dyslexia), (Arifah, 2017).

Interactive multimedia is chosen as a model of learning media used in a learning to channel the message to the communicant counselor. The reason for choosing this interactive multimedia to attract interest and foster students' motivation in the learning process. The pre-reading materials are chosen in deaf students because deaf students have obstacles to their auditor in capturing a learning and pronunciation of correct reading. Indirectly, deaf students learn to read the beginning accompanied by learning sign language of SIBI (Sitem Bahasa Insyarat Indonesia/ Indonesian Sign Language System) and learn how to pronounce the correct speech building.

Based on the above explanations, the researchers suspect that the learning of deaf students is considered less effective. The researcher takes the initiative to provide alternative solutions in the form of interactive multimedia. So, the researcher makes the title "The Interactive Multimedia Development of Beginning Reading for Students with Hearing Impairment in the First Class of SLB EKA MANDIRI BATU". This research and development aim to produce interactive multimedia that is valid and effective use in learning process.

**METHOD**

This study used the Research and Development proposed by Lee & Owens (2004). This research and development through 5 stages namely: (1) Assessment/Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation, figure 1 and 2.

The subject was attempted through validation of media experts, materials experts and practitioners. While the target product trials are students with hearing impairment in class I of SLB Eka Mandiri Batu. Data collection was obtained from open and closed questionnaires and tests.

The products that have been validated by media experts, materials experts, and practitioners have drawbacks and weaknesses, so there is a need for an improvement process to support the validity and effectiveness of the product. Field trials involved 3 subjects who were deaf students of class I at SLB Eka Mandiri Batu. The test is done by using pretest and post test to know the effectiveness of the product. This data is included in the calculated quantitative data to determine the score of each subject reaching the KKM (Kriteria Ketuntasan Minimal/minimum standard criteria)

## FINDINGS AND DISCUSSION

### Findings

**Table 1. Result of Expert Validation**

Validator	Percentage	Criteria
EPA (media expert)	94%	Very Valid
ET (materi expert)	80%	Fair Valid
ERTW (practioner expert)	80%	Fair Valid

**Table 2. Result of Field Trial**

No	Name	PreTest	PostTest	Qualification
1.	AP	70	90	Very Effective
2.	ML	55	85	Very Effective
3.	RS	40	65	Fair Effective
	<b>Sum</b>	<b>165</b>	<b>240</b>	

Based on the scores obtained in table 1, the results show that the scores obtained is 94% from validation of media experts, refer to the eligibility criteria of products with highly valid qualifications and with the record can be used without improvement. While the results indicate that the scores obtained from the validation of the material experts and practitioners of 80%, refer to the eligibility criteria of the product with sufficiently valid qualification with the record can be used but small improvement needs. The trials were conducted on 3 students and counted the number of scores obtained from each student who reached the KKM based on post-test results with the following data;

Based on table 2, it can be seen that field test of post-test score reaching KKM of data perceived shows 100%. The product effectiveness criteria are highly effective qualification used at the time of learning.

### Discussion

According to Puranto (2015), hearing impairment is an inability to speak, raises the notion that hearing impaired children are unable to hear and, thus, they have difficulty in communicating verbally. Meanwhile, according to Soemantri (2005), deaf is a person who lost both partial and overall hearing loss resulting in malfunctioning hearing well.

The inability to speak to a child with hearing impairment is due to the inability to hear. This condition makes the deaf children have difficulty in

distinguishing characteristics from various sources of sound which are then applied in the form of oral discussion. The language is divided into two such as written and spoken language combined into a single entity through reading activities.

Reading is one of the most basic learning process activities. Where a person every day faced with differently forms of letters, symbols and writing different. In reading, readers not only recognize or know the form of letters and symbols, but more emphasis on the pronunciation and understanding of the series of letters and symbols, making it easier for readers to understand the meaning contained in it.

Reading is one of the most important activities in recognizing, knowing, and understanding the content of reading. The beginning reading is the most basic learning process activity. The beginning reading contains the introduction of letters, symbols, syllables, words, so that, they formed into sentences that have a certain meaning. Reading is an activity consisting of recognizing letters into words, connecting with sounds and meaning, and drawing conclusions about the meaning of the reading (Sidiq & Fauziah, 2016).

In reading, we not only recognize or know the symbols of reading but also have to know the pronunciation and sounds contained in certain letters or symbols. The purposes of the beginning reading are: a) able to distinguish the form of letters, b) pronounce the sounds of letters and words correctly, and c) able to voice the writing that is being read correctly (Priyanti, 2017). Pronunciation of the sounds' letters that are arranged in the form of words and sentences will have meaning. Each letter or symbol has different characteristics between pronunciation and its meaning.

Seefeldt & Wasik (2008) suggests that “a child learns to know letters, words, related to sounds, letters and words”. Learning activity begins by adapting through various writings and it is accompanied by interaction directly with the writings he has ever seen. In this aspect, it can indirectly cognitive development of children in digesting the existing writings.

Cognitive ability is all something associated with thinking different at each stage of development. At this stage, the teacher must adapt the teaching materials to the stage of child development. The same thing is revealed by Subakti (2010), that cognitive learners have a perspective in processing information through organizing, storage, and then connecting new knowledge with existing knowledge. Deaf children in the grade I tend to be more familiar with a concept than to understand the content of the concept. If a child with hearing impairment encounters a reading consisting of various forms and characteristics of letters, then the student is often confused about it. For example, if a child with hearing impairment is asked to

mention the letter designated by the teacher, they can name the letter using the gesture correctly. Different in terms of pronunciation or sounds contained in letters, they often mention the letter with the wrong speech or sound. At this stage, there should be an emphasis on knowing, and understanding the concept in reading activities during the learning process takes place.

The learning process taking place continuously can not be separated from the use of methods or learning media as a supporter of the success of a learning process. The strategies used in the learning process are varied and diverse. There is a need for appropriate methods and educational media to explain the beginning reading material that includes the introduction of the letters and how to read it, so that, the deaf student can read through his or her comprehension and pronunciation. The researcher uses learning media in the form of interactive multimedia to read the beginning which contains about the introduction of letters of the alphabet and letters SIBI (Indonesian Signal System) accompanied by video pronunciation / speech building.

According to Darmawan (2011), the multimedia is a computer utilization in creating and combining text, graphics, audio, video, animation, and combine various features that allow users to interact, create, and communicate. With the learning media that supports and according to the needs of deaf students, indirectly the students can interact well through multimedia.

Munir (2015) suggest that the advantages of interactive multimedia are: a) a more innovative and interactive learning system, b) educators will always be creative and innovative in learning, c) combining text, images, audio, music, animation, video into one unity that supports each other in achieving learning objectives, d) can motivate learners during learning activities to achieve learning objectives, e) can visualize the material with explanations and props conventionally, f) can train learners more independently in acquiring knowledge.

Based on the previous research and development, the resulting product is in the form of interactive multimedia CDs consisting of audio, visual, animation, text. The results of previous research indicate that interactive multimedia is considered feasible with a score of 3.27. The result of the material validation test obtained an average of 3.75 including the learning media test and the feasibility test of interactive multimedia product as a whole is declared feasible.

The result of data validation of product feasibility validation test based on criteria and formula Akbar (2013) shows result of score obtained from validation of media expert 94% with qualification very valid and with note can be used without repair. While the scores obtained from the validation of expert material

and expert practitioners 80% with qualifications and with notes can be used with a small note improvement need. The field trial result of the total score of students who reach KKM shows 100%, based on the criteria of product effectiveness with qualification is very effective used in the learning.

## CONCLUSIONS

The interactive multimedia of the beginning reading for students with hearing impairment in the grade I consist of introducing letters of the alphabet and SIBI letters which are accompanied by pronunciation. It is developed in accordance with hearing impairment students' needs in the grade and it can be used as a feasible medium and very effective in learning process activities.

It is expected that the researchers and developers can further develop the learning media on the next material competence by multiplying the subject of research and research area.

## REFERENCES

- Akbar, S. (2013). *Instrumen Perangkat Pembelajaran*. Bandung: PT Remaja Rosdakarya
- Arifah, H. N. (2017). Pengembangan Multimedia Pembelajaran Interaktif Keterampilan Membaca Permulaan Siswa Disleksia Kelas III SDN Bangunrejo II Yogyakarta. *E-Jurnal Skripsi Mahasiswa TP*, 6(6), 616-630.
- Darmawan, D. (2011). *Teknologi Pembelajaran*. Bandung: ROSDA.
- Efendi, M. (2010). *Pengantar Psikopedagogik Anak Berkelanan*. Malang: BUMI AKSARA.
- Sidiq, Z., & Fauziah, P. (2016). Penggunaan Multimedia Interaktif Cerdas Belajar Baca dalam Meningkatkan Kemampuan Membaca Permulaan pada Anak Tunagrahita Ringan. *JASSI ANAKKU*, 11(1), 1-9.
- Lee, W., & Owens, D. (2004). *Multimedia-based Instructional Design*. San Francisco, USA: Pfeiffer, John Wiley & Son Inc.
- Munir. (2005). *Multimedia Konsep & Aplikasi dalam Pendidikan*. Bandung: Alfabeta.
- Purtanto, B. (2015). *Tips Menangani Siswa yang Membutuhkan Perhatian Khusus*. Yogyakarta: DIVA Press.
- Seefeldt, C., & Wasik, B. A. (2008). *Pendidikan Anak Usia Dini (Menyiapkan Anak Usia Tiga, Empat, Lima Tahun Masuk Sekolah)*. Jakarta: Indeks.
- Soemantri, S. (2005). *Psikologi anak Luar Biasa*. Bandung: Refika Aditama.

- Subakti, Y. R. (2010). Paradigma Pembelajaran Sejarah Berbasis Konstruktivisme. *Jurnal SPPS*, 24(1), 31-53.
- Priyanti, Y. R. (2017). Peningkatan Kemampuan Membaca Permulaan Melalui Lectora Inspire® Pada Siswa Autis di SLB Tegar Harapan. *Widia Ortodidaktika*, 6(4), 371-378.