

Learning hijaiyah letters through sign language using marbel application for students with hearing impairment

Mega Iswari^{1*)}, Nurhastuti Nurhastuti¹, Retno Triswandari¹, Zulmiyetri Zulmiyetri¹, Johandri Taufan¹, Ringgi Rahmat Fitra², Gaby Arnez¹, Setia Budi¹

¹Special Education, Faculty of Education, Universitas Negeri Padang, Padang, Indonesia,

²Special Education, Universitas Adzka, Padang, Indonesia

*) Correspondence author e-mail: mega_biran@fip.unp.ac.id

Abstract: The advancements of knowledge and technology in the fourth industrial revolution have influenced learning settings at school. Teachers have to develop new learning methods, models, and media to help improve their students' learning outcomes. The technology that is becoming popular among students is Android-based media. Students at school are diverse and so are students at special education schools (SLB). Students with hearing impairment are those who suffer from hard of hearing and hearing loss. Teachers must get their students to make the most of their residual hearing and other senses like touch and sight when learning, especially during difficult subjects. One of the subjects that the students consider the hardest is religious education because it has a lot of practice and memorization. Hijaiyah is 30 letters of the Arabic alphabet and learning them becomes the core competency in reading the Quran. Teachers can use sign language as their teaching strategy. Sign language is a non-verbal language used by hearing-impaired people. However, sign language is still not commonly used among teachers at special education schools. This research used Research and Development model. The data were collected through observations, interviews, documentation, and literature study. The data analysis was conducted using data reduction, data presentation, and data interpretation. The product of the research is an Android application for learning hijaiyah letters through sign language for students with hearing impairment.

Keywords: Hearing impairment, marbel application, hijaiyah letters, sign language

Article History: Received on 19/06/2024; Revised on 23/06/2024; Accepted on 30/07/2024; Published Online: 10/08/2024.



This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. ©2024 by author.

INTRODUCTION

The advancements of knowledge and technology in the fourth industrial revolution have influenced learning settings at school. Teachers have to develop new learning methods, models, and media to help improve their students' learning outcomes. The technology that is becoming popular among students is Android-based media. Students at school are diverse and so are students at special education schools (SLB). One of the disabilities is hearing impairment. Students with hearing impairment have hearing

difficulties in which the levels of difficulties range from mild hearing loss to profound hearing loss. The category is divided into deaf and hard of hearing. Students with hearing impairment have difficulties in processing spoken information, even when equipped with hearing aids. Therefore, they need guidance and special education that meet their needs and optimize their language and potential (Kustawan Dedi & Yani, 2013).

Teachers must get their students to make the most of their residual hearing and other senses like touch and sight when learning, especially during difficult subjects. One of the subjects that the students consider the hardest is religious education because it has a lot of practice and memorization. In the curriculum of Special Junior High School for students with hearing impairment, students must learn hijaiyah letters. Hijaiyah are 30 Arabic letters and learning them becomes the core competency in reading the Quran. Teachers can use sign language as their teaching strategy. Sign language is a non-verbal language used by hearing-impaired people. However, sign language is still not commonly used among teachers at special education schools.

Teachers still use the conventional methods of teaching (Murniati, 2018) which are reading and imitating the spelling of hijaiyah letters (Al Isyad et al., 2021). This becomes a problem for students with hearing impairment because they have no understanding of what they are doing. The solution for this problem is the sign language-based marbel application. Recognizing hijaiyah letters is the earliest stage of reading the Quran. Android is one of the most used operating systems that have a variety of features. It is also a Linux-based mobile system that includes operating system, middleware, and key applications. This mobile operating system that runs on smartphones and tablets is what most students are exposed to. Android-based marbel application is the right alternative for improving the quality of education (Riyan, 2021).

Marbel application has an attractive display design in the aspects of colors, writing, pictures, and animations. The application is user-friendly for people with hearing impairment and the buttons are functioned as described in the manual. The materials and exercises in the application, including the 30 hijaiyah letters and their marks, prevent the students from getting bored. Another advantage is this application can be used independently inside and outside the school. User can easily download the application through Google Drive from their gadget or computer. The application is equipped with reviews and scores to see the level of achievement (Anita Adesti & Siti Nurkholimah, 2020).

Students with hearing impairment are those who suffer from hard of hearing and hearing loss. Their hearing difficulties affect their development, especially the language aspect. The characteristics of language development of students with hearing impairment in language acquisition are the use of sign language, short sentences in writing, difficulties in arranging sentence structure, and lack of vocabulary. The difficulties caused by hard of hearing and hearing loss affect students' language abilities. For this reason, they have a special communication system which is sign language.

Sign language is one of manual communication commonly used by people with hearing impairment. The functions of manual communication are as the complement to oral communication, as the alternative to verbal communication, as the direction of idea and

expression, and as the mood to meet expected communication. Sign language combines forms, orientation, movement of the hands, arms, body, and facial expressions to express a speaker's thoughts (Marlina & Irdamurni, 2018). In Indonesia, there are 2 sign language systems: the Indonesian Signal System (SIBI) and the Indonesian Sign Language (BISINDO). SIBI is a system adopted from the American Sign Language (ASL) developed by normal people. It is a standardized sign language used as instructional classroom language in SLB. Meanwhile, BISINDO is a language system derived from the culture of people with hearing impairment and is organized by the Movement for the Well-Being of Deaf Indonesians (GERKATIN). Today, BISINDO is widely used by people with hearing impairment because it is more practical and more effective for daily interaction. BISINDO is grammatically intuitive and natural for the deaf as the spoken language is natural for hearing people (Palfreyman et al., 2015).

Hijaiyah letters are Arabic letters. According to the Great Dictionary of the Indonesian Language, Arabic letters started from alif to ya. Hijaiyah letters are 30 Arabic letters that are written in the Quran and learned by Moslems. Students with hearing impairment still have difficulties in learning hijaiyah letters in the Quran. They have more struggles to understand each letter because it is different from the Latin alphabet. They learned hijaiyah through sign language. The ability to sign hijaiyah letters is the only way for them to learn the Quran. Therefore, learning hijaiyah for students with hearing impairment needs innovation through learning media because learning media is a tool to transfer and deliver messages. A medium is called a learning media when it transfers messages during the learning process (Muhammad Hasan et al., 2021). A learning process will be effective and successful when the teachers are able to create the appropriate learning media. It is appropriate when it improves the interaction during the learning process, prevents the students from getting bored, and fits the students' development of every age.

Industry 4.0, also known as the digital era, is pushing teachers to evolve their teaching using classic and modern learning media. One of the modern learning media is the Android-based application. Android is a Linux-based mobile system that includes the operating system, middleware, and key applications (Yuniar Supardi, 2017). According to Yosef Murya (2014), Android is a Linux-based operating system that runs on smartphones and computers (PDA). Hence, Android-based media is a tool for transferring messages during the learning process equipped with a Linux-based mobile system that includes the operating system, middleware, and key applications. The application is used as a medium to transfer messages in learning hijaiyah letters through sign language, so it helps students with hearing impairment to understand better.

METHOD

This research is research and development. It aims to produce products and consists of several stages: needs analysis, product development, product evaluation, revision, and product distribution (Purnama, 2016). The researchers refer to Borg and Gall development model with ten stages. However, the researchers reduced the stages into five stages: 1) the

collection of information including problem and potential analysis; 2) planning and designing the application (the draft of application design and content).

The activity performed in year 1 was the analysis of the problem and potential of students with hearing impairment in learning hijaiyah letters. The next step was analyzing the purposes of marbel application for learning hijaiyah letters with sign language. Then, the application was developed and tested. The process of the research is outlined as follows: 1) The collection of information (problem and potential). In this stage, the researchers collected information about the methods and media used by the teachers of special education in Padang when teaching hijaiyah letters with sign language. The data were collected by observations and interviews; 1) Initial application. This stage was a follow-up of year 1 activity in which the data were processed. Then, the application was designed using Android system for students with hearing impairment in Padang. The next step was testing of validity, effectiveness, and practicality. When the application is declared valid, effective, and practical, it was restrictively developed through an experiment.

The research stages are described in the following flowchart:



Figure 1 <Diagram Alir Penelitian>

RESULTS AND DISCUSSION

Marbel Hijaiyah application is made for students with hearing impairment to learn hijaiyah letters. The application contains videos with sound and sign language, methods of learning 30 hijaiyah letters, and exercises. The application development is expected to help teachers improve their students' understanding of hijaiyah letters.

The data collected found many special education schools with students with hearing impairment have not used application when teaching hijaiyah letters: SLBN 2 Padang, SLB Autis Buah Hati Ibu, SLB Kasih Ummi, SLB YPPLB Padang, SLB Autis Harapan Bunda, SLB Perwari, SLB YPAC Sumbar, SLB Muhammadiyah Naggalo, SLB MGF Lubuk Buaya Padang, SLB Al Mujadillah, SLB Amanah Padang, SLB Autis BIMA Padang, SLB Bakti, SLB Gema Insani, SLB Karya Padang, SLB Lumin Alisa, SLBSalsabila Indah and SLB Aslam Kids.

Marbel Hijaiyah application through sign language helps students with hearing impairment understand hijaiyah letters and read the Quran. The application layout and manual are depicted in the following images:



Figure 2 <Logo>



Figure 3 <Main Menu>



Figure 4 <Display of Hijaiyah Letters>



Figure 5 <Exercise Menu>

The manual of the application is explained below: 1) There are two options START and EXERCISE in the main menu. When students tap on START, hijaiyah letters options open along with its sign language, as shown in image 3; 2) When students tap on EXERCISE in the main menu, students will be directed to choose the right hijaiyah letter, as shown in image 4; 3) When the students tap on the INFO menu, it displays the purposes of the application.

CONCLUSIONS

The results of the research have found that marbel application is not commonly used as learning media in special education schools. Students with hearing impairment need more learning media related to visual and concrete objects to help them understand the information they received. It also works as an alternative media to bridge their barriers. Teachers must get their students to make the most of their residual hearing and other senses like touch and sight when learning, especially during difficult subjects. One of the subjects that the students consider the hardest is religious education because it has a lot of practice and memorization.

In the curriculum of Special Junior High School for students with hearing impairment, students must learn hijaiyah letters. Hijaiyah is 30 letters of the Arabic alphabet and learning them becomes the core competency in reading the Quran. Teachers can use sign language as their teaching strategy. Sign language is a non-verbal language used by hearing-impaired people. However, sign language is still not commonly used among teachers at special education schools.

Teachers still use the conventional methods of teaching (Murniati, 2018) which are reading and imitating the spelling of hijaiyah letters (Al Isyad et al., 2021). This becomes a problem for students with hearing impairment because they have no understanding of what they are doing. Marbel application for learning hijaiyah letters through sign language is made for students with hearing impairment to improve their abilities and help teachers deliver hijaiyah letters learning materials during religious education class.

REFERENCES

- Adigun, O. T. (2017). Depression and individuals with hearing loss: a systematic review. *J Psychol Psychother*, 7(5), 1–6.
- Adigun, O. T., & Iheme, U. M. (2020). Mathematics anxiety among Deaf learners: An analysis of predictive factors. *The International Journal of Science, Mathematics and Technology Learning*, 28(1), 1–13.
- Aditama Supardi, Y. Koleksi Program Tugas Akhir dan Skripsi dengan Android. (2017). Jakarta: Elex Media Komputino
- Alqraini, F. M., & Alasim, K. N. (2021). Distance Education for d/Deaf and Hard of Hearing Students during the COVID-19 Pandemic in Saudi Arabia: Challenges and Support. *Research in Developmental Disabilities*,
- Al Irsyadi, F.Y., Susanti, L.D., & Kurniawan, Y.I. (2021). Game Edukasi Belajar Huruf Hijaiyah untuk Kelas 2 di Sekolah Luar Biasa Yayasan Rehabiltasi TunaRungu Wicara Surakarta. *Jurnal Imu Komputer dan Informatika*, 1 (1), 43-54.
- Anita Adesti, & Siti Nurkholimah. (2020). Pengembangan Media Pembelajaran Berbasis Android Menggunakan Aplikasi Adobe Flash Cs 6 Pada Mata Pelajaran Sosiologi. *Edutainment: Jurnal Ilmu Pendidikan dan Kependidikan*, 8(1), 27–38. <https://doi.org/10.35438/e.v8i1.221>
- Fauziah, Y., Yuwono, B., & DWP, C. (2014). Aplikasi Kamus Elektronik Bahasa Isyarat Bagi Tunarungu Dalam Bahasa Indonesia Berbasis Web. *Telematika*, 9(1). <https://doi.org/10.31315/telematika.v9i1.297>
- Halfi, R. (2012). Meningkatkan Kemampuan Pengoperasian Perkalian Melalui Metode Horizontal Bagi Anak Tunarungu. *E-JUPEKhu*, 1(2), 112–125.
- Hasan, M. Milawati, Daradjat, dkk. (2021). Media Pembelajaran. Malang: Tahta Media Group
- Heineman-Gosschalk, R., & Webster, A. (2003). Literacy and the role of parents of deaf children. *Deafness and Education International*, 5(1), 20–38. <https://doi.org/10.1179/146431503790560772>
- Kustawan, D & Yani, M. (2013). Mengenal Pendidikan Khusus dan Pendidikan Layanan Khusus serta Implementasinya. Jakarta: Luxima Metro Media.

- Marlina, M. & Irdamurni, I. (2018). Pengembangan Model Pembelajaran Bahasa Isyarat Kata Kunci sebagai Upaya Peningkatan Keterampilan Berbahasa pada Anak Autis Usia Dini. Repository.unp.ac.id/id/print/29269
- Marui. (1952). The Role of the Parents in the Education of Children. *Psychiatry and Clinical Neurosciences*, 6(3), 221–230. <https://doi.org/10.1111/j.1440-1819.1952.tb01331.x>
- Murniati, M. (2018). Pembelajaran Agama Islam pada Anak Berkebutuhan Khusus Tunarungu dan Tunanetra: Penelitian di SLB BC Murni Kota Bandung. UIN Sunan Gunung Djati Bandung
- Murya, Y. Pemrograman Android Black Box. (2014). Yogyakarta: Jasakom
- Noor, Muhammad; Lutviani, Risenna, M. (2016). Aplikasi Pintar Membaca Huruf Hijaiyah pada Anak Usia Dini Berbasis Android. *Jurnal Sains & Informatika*, 2(2), 98–106.
- Palferyman, N., Sagara, K., & Zeshan, U. (2015). 11 Methods in Carrying out Language Typological Research Methods in Sign Language Studies: A Practical Guide, 1 (2), 173
- Purnama, S. (2016). Metode Penelitian dan Pengembangan (Pengenalan untuk mengembangkan Produk Pembelajaran Bahasa Arab). *LITERASI (Jurnal Ilmu Pendidikan)*, 4 (1), 19
- Rahmah, F. N. (2018). Problematika Anak Tunarungu Dan Cara Mengatasinya. *Quality*, 6(1), 1. <https://doi.org/10.21043/quality.v6i1.5744>
- Riyan, M. (2021). Penggunaan Media Pembelajaran Berbasis Android Pada Pembelajaran Teks Eksposisi. *Diksi*, 29(2), 205–216. <https://doi.org/10.21831/diksi.v29i2.36614>
- Sadja'ah, E. (2013). *Bina Bicara, Persepsi Bunyi dan Irama*. Bandung: Refika
- Syafrida Hafni Sahir. (2022). *Metodologi Penelitian*.
- Wibowo, S. B. (2016). Inclusive Education, Right for Children With Special Needs (Studies in Metro City Lampung). *International Conference on Child-Friendly Education*, 51–57.