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BIM Connect:

A MOBILE LEARNING APPLICATION FOR MALAYSIAN SIGN LANGUAGE

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ABSTRACT

The number of hearing-impaired people has gradually increased in Malaysia, which necessitates sign language skills. Since the establishment of the Malaysian Federation of the Deaf in 1998, Malaysian Sign Language (BIM) has been used as the primary means of communication for the deaf-mute community in Malaysia. Hearing individuals should be encouraged to learn and practice sign language in an effort to bridge the communication gap and improve accessibility. The significance of this study lies in the novel opportunity it provides for hearing learners to learn BIM through effective methods which have never before seen in the Malaysian context. This is in line with the growing need for accessible BIM references which are scarcely available in Malaysia to date which necessitates unique innovations of this kind. Hence, this study aims to design a mobile application that can facilitate the learning of BIM by using the Figma designing tool. With respect to the standards in BIM, the researchers self-produce the contents related to the hand gestures that represent the signs. The application is then tested by having beginner learners use it. The results indicate that the learners are able to benefit from it through the lessons and exercises provided which suit their proficiency level as beginners. It can be deduced that this application helps BIM learners to grasp the foundational concepts of sign language which allows them to understand diversity and break social barriers.

Keywords: Malaysian Sign Language, deaf-mute community, communication gap, accessibility, mobile application

INTRODUCTION

The deaf-mute community in Malaysia represents a vibrant yet often marginalized segment of society, comprising individuals who navigate daily life with limited or no access to auditory and verbal communication. Despite Malaysia's growing awareness of inclusivity and disability rights, members of the deaf-mute community frequently encounter barriers in education, employment, healthcare, and social integration due to a lack of widespread understanding and institutional support for their communication needs. In other words, deaf individuals face challenges integrating into mainstream hearing society because of difficulties in communication (Lee et al., 2022). Social stigma and misconceptions about their abilities further deepen the marginalization they experience. However, the deaf-mute community in Malaysia is resilient, with many individuals actively advocating for their rights and working to foster greater understanding and acceptance. Through community support, cultural expression, and increasing advocacy efforts, they are gradually creating spaces where their voices can be seen, heard, and respected. Malaysian Sign Language, known as *Bahasa Isyarat Malaysia* (BIM), stands as a crucial tool for bridging this communication gap, offering not just a means of expression but a gateway to equal participation in society. Since the establishment of the Malaysian Federation of the Deaf in 1998, BIM has been used as the primary means of communication for the deaf-mute community in Malaysia (Siong et al., 2021). BIM is more than a language; it is a cultural cornerstone that affirms identity, fosters community, and empowers the deaf-mute population to engage meaningfully in national development. However, the recognition and promotion of BIM remain insufficient, with many public institutions and services still being inaccessible to sign language users. As such, there is an urgent need to integrate BIM into mainstream education, governmental communication, and public media to ensure that the deaf-mute community is not left behind in Malaysia's pursuit of social equity and progress. In an effort to fill the gap in BIM resources for hearing learners, the researchers aim to develop a mobile learning application that underscores the fundamental lessons of BIM which are enriched with easy-to-access features and a touch of gamification.

METHOD

The methodology for developing a mobile learning application for BIM involves a user-centered design approach that emphasizes accessibility, interactivity, and cultural relevance for hearing individuals to connect with deaf-mute communities in Malaysia. This study designed the BIM Connect mobile application that can facilitate the learning of BIM by using the Figma designing tool. The process began with comprehensive user research including observational studies to understand the learning needs and preferences. Based on the data collected, user personas and user journey maps were created to guide the design process. Wireframes were initially sketched to outline the basic structure and flow of the application, ensuring that navigation is intuitive and visually accessible. These wireframes were then translated into mockups using Figma, allowing for detailed visual design and prototyping of each screen. Special attention was given to incorporating clear visuals, self-produced video demonstrations of BIM gestures, interactive quizzes, and a simple interface. The final prototype not only reflected the linguistic and cultural nuances of BIM but also prioritized ease of use, making learning more engaging and effective for beginner hearing users across different age groups as the application was then tested by having beginners use it.

RESULTS AND DISCUSSION

The lessons incorporated in BIM Connect are divided into four sections: fingerspelling, common nouns, first-level common phrases, and second-level common phrases in BIM as illustrated in Figure 1.

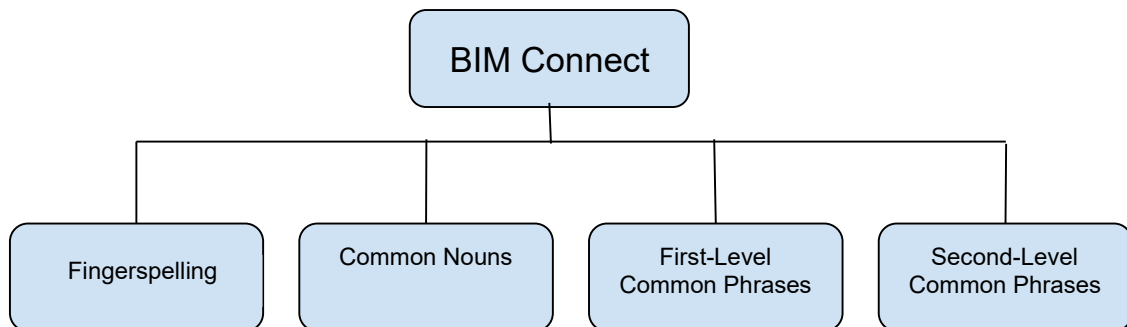


Figure 1.: Categories of lessons in BIM Connect

After the research and development phase, the researchers were able to produce the Figma prototype of the application which is designed according to the categories of lessons presented earlier. Each category contains theoretical lessons incorporating self-produced BIM hand gestures or signs that indicate respective letters, words, or phrases, followed by interactive quizzes. The sample of the screens are shown in Figure 2.

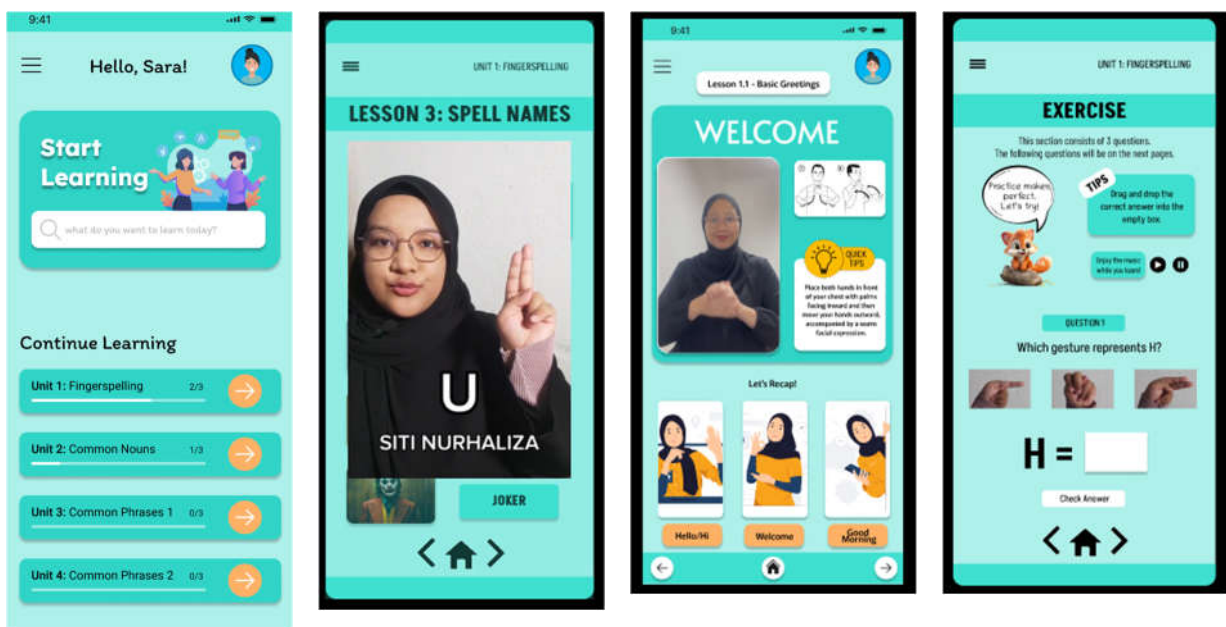




Figure 2.: Sample of the application prototype designed using Figma

By having beginners use the application, it was discovered that the content of the lessons suits the needs and preferences of BIM beginners as it covers the very fundamental aspects of sign language which act as the anchor of sign language skills. Through interactive quizzes and simple interfaces, the beginners were able to test their understanding of the lessons and improve their sign language skills accordingly.

CONCLUSION

The development of the mobile learning application for BIM represents a significant step toward promoting inclusive and accessible education to connect hearing and non-hearing communities in Malaysia. By leveraging the design capabilities of Figma, this project has produced a user-friendly, interactive, and visually engaging prototype that supports self-paced learning of BIM. Through user-centered design principles, the prototype was tailored to meet the specific needs and preferences of target users, ensuring ease of navigation, intuitive interaction, and effective visual learning elements. While the current work is limited to the prototype stage, it lays a solid foundation for future development, which may include integrating animated sign demonstrations, gamified learning modules, and speech-to-sign recognition technologies. This study not only contributes to the field of educational technology but also underscores the importance of technological innovation in preserving sign languages. Ultimately, the initiative supports Malaysia's broader goal of fostering digital inclusivity and educational equity.

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