Basics Malaysian Sign Language: The Development of Mobile Learning Application

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Abstract: Sign language can be difficult for citizens who want to learn and communicate with deaf people. There is a lack of the right resources and platforms to learn basic sign language demanding normal people to know and learn. A mobile learning application called Basics Malaysian Sign Language was developed to address this issue enabling users to learn basic sign languages and basic conversation. The ADDIE model was used to implement the project. The application gives a positive effect by spreading the use of sign language especially for beginners to assist the community in learning sign language. As a result, the community can communicate with each other especially to deaf people.

Keywords: Sign Language, Application, ADDIE Model, Citizen, Deaf People

1. Introduction

In this era of rapid technological development, information technology is the core of today's society. The meaning of Information and Communication Technology is a process in streaming, storing, disseminating and processing data using data. Technology acts as a facilitator for the flow of information. According to [1], information and communication technology makes an individual understand the uses of computer and communication devices in more depth.

The influence of information technology can also be seen in education where students use it to find information related to learning. In addition, technology also allows an individual to perform a task over a long distance for example students can complete the assignment given by the lecturer or teacher even if the learning process is not carried out face to face. Therefore, there are several key aspects in the use of information technology. First, editing is done to gather information using technology. Second, an image can be reprocessed well and it can process information. Finally, the ability to communicate with others by sharing information from the recipient as well as information can be received by the user quickly.

1.1 Smartphone and handheld devices

Not surprisingly, the use of smartphones is becoming more widespread. This is due to the smartphone's high degree of utilization, that can be used in various tasks. For example, users can share information even when communicating over long distances. As such, smartphones are a very popular communication tool regardless of age and young or old. This smartphone also has the ability to find information, share opinions with the community and can access the internet anywhere. Moreover, its small and thin size allows users to carry it easily. Not to forget, the smartphone is capable of accessing and managing digital media such as video, photos, music audio and applications. Its widespread effectiveness has given the community a greater advantage in finding information through the internet.

1.2 Teaching and learning

The effectiveness of information technology is evident especially in the field of education and learning today [2]. It can be seen as a tool that is quite effective for students compared to traditional learning. This shows a positive effect especially in the field of education. Therefore, there are differences in the methods of past and present learning sessions. In traditional learning, teachers need to interact with students face to face and it is only done in school. In addition, students need to refer to the teacher to get accurate information. The reference materials used are books, magazines and others. Learning in the 21st century is also done face to face and live. In addition, information access is easy and fast with the use of the internet. The learning process can also be carried out outside of the classroom using an online learning platform. In addition to the use of smartphones, laptops and other technologies can also be used for learning purposes.

Mobile learning means disseminating electronic learning materials that can be distributed quickly without being tied to the learning location using portable electronic devices and can be accessed anywhere [3]. With this, learning is done easily and quickly. Mobile learning is also a newly introduced learning method. It can help new learning methods to the community and especially the students. In addition, with this mobile learning, it can ease the burden of the community and students to find the right reference material that fits the basics of sign language.

1.3 Basic sign language

Education through applications is becoming more widespread including in learning the basics of sign language which can be found on the internet easily. Now, any information is easy to find with just a fingertip. Sign language is not limited for anyone to learn but it is free and accessible for the community to learn a new language. Research [4, 5] mentioned that sign language is a form of communication language used by the deaf community to communicate with each other and it is used more widely. This language is also used by people who are fluent in using sign language as well as used by communities that have speech problems. The use of sign language has opened the eyes of the world that the disabled should also be given attention by the community because they are often sidelined.

Next, there are some problems faced by the community to learn the basics of sign language. Among them is the lack of accurate reference sources such as material from YouTube, Google, online websites and blogs that are less clear. Therefore, we created this application for use by the public as a basic learning tool for sign language. The main purpose of this application is to make it easier for users to learn sign language, especially for people who are not proficient in using sign language when communicating with people who are deaf and have hearing problems. In this modern age, technology is evolving rapidly to make it easier for users to perform a task without facing any difficulties. Therefore, with the availability of mobile learning, it can help users learn by using electronic devices more widely. The use of the Basic Malaysian Sign Language application enables users to easily and quickly learn the sign language.

2. Materials and Methods

In developing this learning application, this project uses the ADDIE design method and the processes involved are Analysis, Development, Design, Implementation and Evaluation [6, 7, 8]. This study is done to find out the real thing that is happening in the current system. To find out whether this Android application is very suitable, several studies have been done for the development of the Basic Malaysian Sign Language application. As such, the study's sample, instrument, data collection and data analysis methods will be explained in this section. Figure 1 shows the ADDIE model.
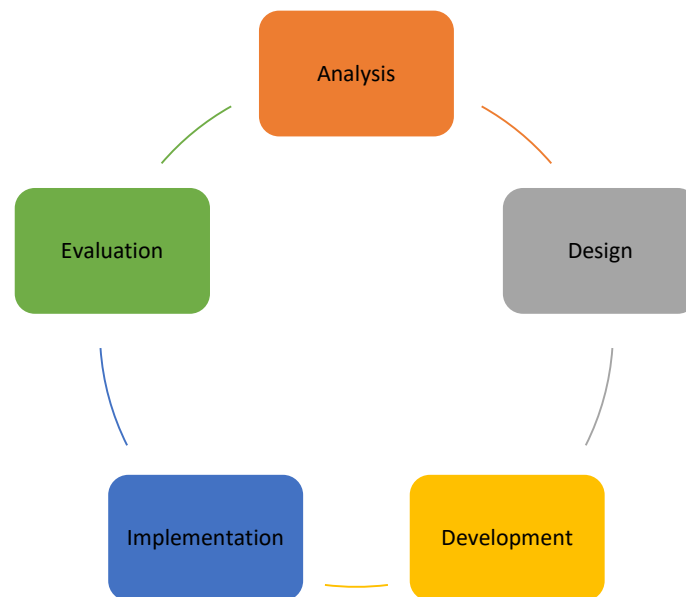

Figure 1: ADDIE model

2.1 Analysis

In this phase, we need to do research to determine the problems that exist in the development of an application. In the development of this application, several studies have been done to ensure that the construction of this learning application can function properly. The Basic Malaysian Sign Language application also has target users from the general public and high school students who will use this application. In this phase of analysis there are several scopes that need to be focused including the scope of the project, project background, project objectives, scope of application development and problems found in learning.

2.2 Development

In this phase, the development of an application and suitable software should be formed based on previous studies. A success development comes with a good application, based on the software used to make an application successful. Thus, the Adobe Animate CC software is used to develop the Basic Malaysian Sign Language application for the community. In addition, Adobe Photoshop is also used in developing this application. The Adobe Animate software is ideal for building Android-based applications. The programming language used in the development process is Actionscript 3.0. Therefore, there are several multimedia elements used such as graphics, audio and text. Backgrounds, logos, icons and menus are also produced during the development process. Attractive revenue can attract users in using the application.

2.3 Design

In this phase, planning by designing the user interaction (UI) needs to be done in application formation. Next, the system processes need to be planned in advance so as not to cause problems during development. This is because, it meets the needs of the user. Figures 2 to 8 shows the development of application.
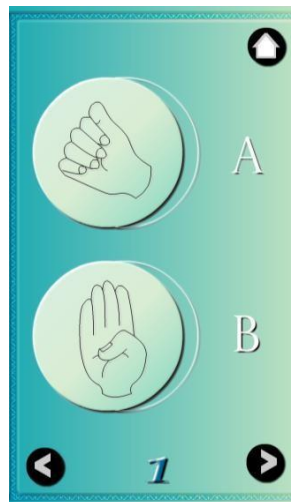

Figure 2: main menu

Figure 3: learn alphabets

Figure 4: learn numbers
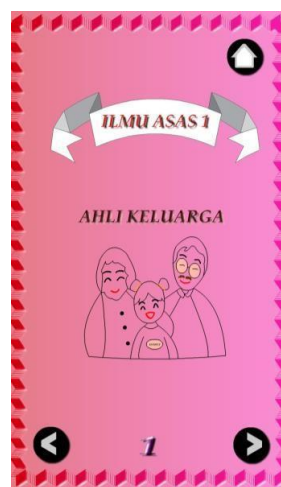

Figure 5: learn to speak

Figure 6: learn about basic conversation

Figure 7: Learn about state in Malaysia

Figure 8: quiz

2.4 Implementation

In this implementation phase, a testing process is performed on the application to see the success of this application. If it works then it will pass for the next phase which is the evaluation phase. This application needs to be downloaded in a smartphone to test the Basic Malaysian Sign Language application. The application will be tested to the user where the outcome of this process will be gathered. From this phase, we can meet the demand from users.

2.5 Evaluation

In this phase we will ask some respondents to use our application where the respondents are among general public and high school students. It is to see the effectiveness in using the Basic Malaysian Sign Language application among the community and students. In this phase, we can see the effectiveness of the application from users.

3. Results and Discussion

The sample consisted of the general public and high school students. The total number of respondents found was 35 people, consisting of members of the public ranging from the age of 19 to 45 years old. We take the more effective step by distributing questionnaires online to the public and students [9, 10]. In the questionnaire, there are 13 questions that they need to answer.

3.1 Results

Table 1: the importance of learning sign language

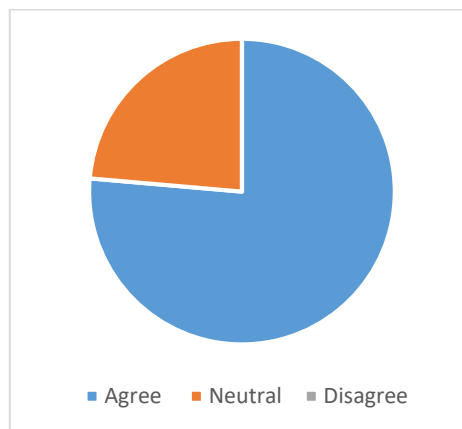| Scale frequency	Respondent	Percentage
Agree	23	76%
Neutral	12	23.5%
Disagree	0	0%

Figure 9: the importance of learning sign language

Based on the Table 1, almost 80% percent of respondents agreed to learn Sign Language by using the Basic Sign Language Malaysia application. This shows that the public is already aware of the importance of communicating using sign language.

Table 2: Public opinion on this application whether it is needed in this modern age

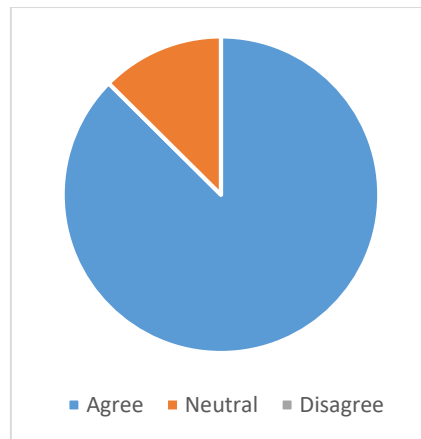| Scale frequency	Respondent	Percentage
Agree	30	87%
Neutral	5	12.5%
Disagree	0	0%

Figure 10: Public opinion on this application whether it is needed in this modern age

Based on table 2, almost 90% of 30 respondents have agreed that this application is suitable as a new learning medium. A total of 12.5% that is 5 respondents remained neutral and 0% disagreed. Hence, it can be concluded that the overall feedback is positive. This is because, most people today are aware of the importance of learning sign language which does not matter age.

4. Conclusion

In conclusion, this mobile learning allows the public to learn sign language easily regardless of the time and also it can be accessed wherever they are. Mobile learning is a very popular new field where it will continue to gain popularity based on the facilities provided. The fact is that convenience is everything for the next busiest society in the next generation. Mobile learning opens up many doors to new technologies in the future. In addition, the community can learn sign language only by using a smartphone. Therefore, the community can communicate with the deaf or dumb community without facing any doubts in using sign language. With mobile learning, users can practice sign language by simply using a smartphone.

Acknowledgement

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