A Design of Mobile Learning Application for English Learning in Indonesia

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Abstract: The development of mobile-based applications for cellular technology is accelerating at the moment. Mobile applications are intended not only for entertainment purposes but also as an alternative learning medium. SENSATION: Learning English with a Mobile Application is a mobile-based English learning medium that is made more appealing and user-friendly by focusing on Indonesian-speaking users. The Multimedia Development Life Cycle (MDLC) method was used to create the SENSATION application. The testing stages in this study began with system validation and content, then progressed to initial application testing. The study used a purposive sampling method, with expert-validated questionnaires, and the data was analyzed descriptively. In the media expert validation, there are three aspects of evaluation. The media expert validation process has three assessment aspects and the material expert validation process has four assessment aspects. The SENSATION application had nine assessment points in the initial test. Based on the validation of media experts and material experts with excellent criteria in terms of systems and content, the results showed that the SENSATION application was valid. After using SENSATION, the initial application testing revealed a positive response in terms of user acceptance. Furthermore, the study's findings are being used in the application distribution stage.

1 INTRODUCTION

The development of technology in the cellular field is currently very rapid, from the cellular model itself to its functions. Maryam is one example of how cell phones can be used as a learning tool. A mobile application as an application that can run on a cell phone and be used to learn, process, and obtain practical information (it is not time-bound and can be carried anywhere). As a result, as technology advances, the use of English as a world language that dominates the era of communication is required (Hu, 2016). English enables you to participate in the global community in the broadest sense.

Even in some fields, English is required (Mobinizad, 2018). The benefits of mastering English include more flexible intellectual (Salaki et al., 2015), academic, language, and social skills that are ready to enter a social context with people of different languages and cultures (Najla'a H. Al-Ajmi, 2020). This implies that mastering the English language is a critical requirement for modern culture today (Damayanti, A. E., Imam S., Happy K., 2018) because mastering the English language allows anyone to extend their relationship with the foreign community (Ezzelden, 2019).

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Mobile education is defined as a learning process that is delivered or supported by handheld and mobile

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technologies such as personal digital assistants (PDAs), smartphones, or wireless laptops (Kuimova & Zvekov, 2016). Because of the increasing use of mobile technology in society and by the younger generation (Musahrain, 2016), students will expect the subject matter to be delivered via mobile technology so that it can be accessed from anywhere and at any time (Al Said, 2020). We create mobile applications to help people learn English for these reasons.

2 LITERATURE REVIEW

2.1 English for Specific Purposes

English is used in several countries, including the United Kingdom, the United States, New Zealand, Australia, Canada, and Ireland. These countries are all former British colonies (Jati, 2018). English is widely spoken in other countries, particularly among people who do not speak another language, even though it is not the dominant language in that country (Ozer & Kılıç, 2018). English is widely spoken in Hong Kong, Singapore, Nigeria, the Philippines, and Malaysia, for example. It is frequently used in such countries as a means of communication between people who speak different native languages. The following are the applications of the English language, and why learning English is important.

In this case, English for news and information is commonly used as a means of exchanging information and news (Ezzelden, 2019). 80% of machine data is interpreted and stored in English (Aljazzaf, 2020). The majority of satellite correspondence is in English. English is used in more than half of the world's newspapers. In many countries where English is a minority language, there is at least one English-language newspaper (Cabrera-Solano et al., 2020). In India, three thousand English-language magazines have been distributed. Many countries broadcast English-language television news. The influence of broadcasting is felt everywhere; protesters in every country use signs written in English.

Business, Diplomacy, and Vocation English. English is the primary language of international trade, diplomacy, science, and business (Gafni et al., 2017). English is used to trade important commodities such as silver, lead, and hard currency (Li, 2017). English is also the official language of several international organizations, including the United Nations and a few others (Shi, 2016). International conventions are also held in English. Many professional papers in English have been published all over the world. Abstracts in English are included in reports published in other languages (Zhang & Zuo, 2019).

English is the global business language. The majority of international business is conducted in English (Aziz et al., 2018). To advance in a career, many international companies have minimum English language requirements (Rahmawati, 2016). Even if everyone at work speaks the native language, the company information may be all in English (Ababneh, 2017). Learning English as a skill will allow you to read and comprehend novels, magazines, and newspapers from all over the world (Muhammed, 2014). It will also allow you to attend conferences and seminars and network with other industry professionals (Liu & Zhang, 2018). English for entertainment. Popular media also plays an important role in the transmission of English. American films are used in nearly every country around the world, and American music is heard everywhere (Mogea & Salaki, 2016).

2.2 Mobile Learning

Mobile learning is a learning paradigm that occurs in locations or situations where simple-to-use devices are available, such as while a learner is using a computer or a cell phone (Guo et al., 2017). With its numerous potentials and benefits, it is hoped that mobile learning will become an additional source of learning in the future, increasing the productivity and efficacy of the process as well as the learning outcomes of Indonesian students.

The use of ICT in education continues to grow in a variety of techniques and ways, which can be defined in the e-learning context as a learning process that uses electronic channels and digital media, as well as mobile learning as a style of learning that primarily uses mobile communication devices and technologies.

The extremely high adoption rate of mobile devices the relatively simple level of usage, and the increasingly low cost of smartphones in comparison to personal computer devices are driving forces that are increasingly extending the use of mobile apps as a current learning pattern that shapes a digital model that can be used at any time. The creation of instructional resources that can be accessed at any time, as well as the representation of relevant content, benefits the concept of mobile learning. the phrases "M-Learning" and "Smartphone".

Learning refers to the use of electronic devices such as PDAs, smartphones, computers, and IT applications in teaching and studying, with a focus on

personal devices in this case. The goal of improving mobile learning is a continuous learning process (long-life learning). Students can be more involved in the learning process, saving time because, when applied to the learning process, students do not need to be in the classroom just to collect homework (Ying, 2018).

3 RESEARCH APPROACH

3.1 Research Design

Researchers used the Multimedia Development Life Cycle (MDLC) method to create SENSATION. The MDLC method improves system development effectiveness and efficiency (Tao., 2016). MDLC system development consists of six development processes, beginning with the concept phase and ending with the distribution. Figure 1 depicts the six stages of development.
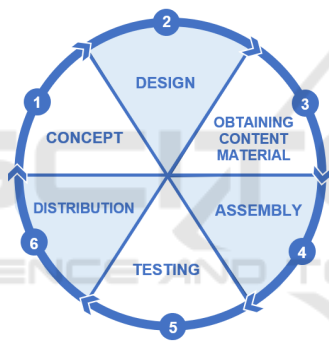

Figure 1: Multimedia Development Life Cycle (MDLC).

1. During the concept stage, goals and audience identification were determined.
2. The specifications for program architecture, style, appearance, and materials were determined during the design stage.
3. The third stage is the content acquisition, which includes images, photos, animations, videos, audio, and source code.
4. The application was built using the assembly stage, which combined all contents and materials into a basic application, such as storyboards, flow charts, and/or navigation structures.
5. Following the assembly stage, testing was carried out in two stages: (1) the first stage referred to alpha testing, which was carried out by the developer, and (2) the second stage was beta testing, which was carried out by English teachers and students.
6. The application will be stored in media storage during the distribution stage so that students and teachers can download it and evaluate product development.

3.2 Sample of Research

The population of this study included all teachers and students from elementary, junior, and senior high schools in North Sulawesi, Indonesia. This app was created to serve as an android-based learning medium for all school grade levels, particularly elementary, junior, and senior high school students. The sample was chosen on purpose, based on the respondents' time availability and willingness. The sample was drawn from three levels of public and private schools on the island of North Sulawesi. The validity of the system and content was validated by four experts. In addition, twenty-four English teachers and 640 students from 12 different schools (four elementary schools, four junior high schools, and four senior high schools) participated in the initial testing of the SENSATION application.

3.3 Instrument of Research

In this study, the level of user acceptance was determined using a valid and reliable questionnaire on a Likert scale. Table 1 shows the four criteria and scores that comprise the scale.

Table 1: Scoring Rules Likert Scale.

Category	Score
Strongly Disagree (STS)	1
Disagree (TS)	2
Agree (S)	3
Strongly Agree (SS)	4

3.4 Procedure of Research

3.4.1 The Test of SENSATION Application System

The SENSATION application system was tested using the black box method in this study. This method tested the application in terms of functional specifications without testing the design or program code to determine the application's functions, input, and output based on the required specifications. The application was validated using two methods: media expert validation and material expert validation. To validate the media, four experts, including expert lecturers and English teachers, tested the application. A Likert scale questionnaire with three assessments: technical, content, and design was used to collect data.

The data was processed using the percentage validation method. The application was tested by four experts in the material expert validity test, who were expert lecturers and English teachers. A Likert scale questionnaire with four indicators was used to collect data: ease of use, motivation, withdrawal, and usefulness. The information was gathered and validated using the percentage method.

3.4.2 Initial Test of SENSATION Application

In the testing stage, SENSATION tested on English teachers and students. The subject of this research was 24 English teachers and six hundred and 40 students in twelve different schools. These schools consist of four senior high schools, four junior high schools, and four elementary schools, both public or private school in North Sulawesi, Indonesia. The sampling technique used was purposive sampling, Data collection techniques using a Likert scale questionnaire with nine assessments, namely functionality, user friendly, beneficial, easy to be implemented, applicable, the application is needed, comfortable, easy to use, and easy to understand. This questionnaire to collect feedback from students who have used SENSATION during English lessons. The data were processed using the percentage validation method.

3.4.3 Data Analysis

Data from the questionnaire were processed using the percentage validation method. The data processing with the formula (Damayanti., 2018):

$$Xi = \frac{\Sigma S}{S \, max} \, x \, 100\%$$

Exp :

S max = Maximal score

ΣS = Amount score

x = Eligibility scores for each aspect questionnaire

Table 2: Validity test based on percentage.

Percentage	Value
81%-100%	Very good
61%-80%	Good
41%-60%	Pretty good
21%-40%	Not good
0%-20%	Very Not good

The results of the percentage score obtained from data are interpreted in the criteria in Table 2.

4 RESULTS AND DISCUSSION

4.1 Results

People nowadays can enjoy the content provided by Android and iOS, but there is little educational content. The SENSATION is a learning system created by a component of education. SENSATION is an acronym that stands for "Study English with a Mobile Application." The Android and iOS frameworks were used to create SENSATION. The SENSATION application is used for English learning. People should be introduced to English at a young age, with the emphasis on reading, writing, and listening.

The SENSATION is an English-learning application designed specifically for Indonesian society, where both children and adults can use it. It is hoped that by introducing English at a young age as well as for adults, we will have a good understanding.

The application's display is also tailored to children's and adults' ages, with bright colors and images that can pique their interest in learning. We can learn both written English words and English pronunciation in the SENSATION. It transforms the sensation into a simple and interactive application for learning English on your own for daily use.

The SENSATION was created in six stages of the Multimedia Development Life Cycle (MDLC), beginning with the concept, design, obtaining content material, assembly, testing, and distribution. (1) The concept stage is the author's preliminary study stage, in which there is an initial study on the use of mobile applications for learning English, followed by the (2) design stage, which loads pages that will later be displayed in the application. The following stage is (3) Obtaining Content Material, in which the author gathers the content that will be loaded into SENSATION. Continue to the fourth stage, "assembly," after finishing loading the material, which is a stage of assembling material and testing the application in a black box test for functionality and application bugs. The following stage is (5) testing to determine the application's readiness and maturity level for use, followed by (6) distribution, also known as the application dissemination stage.

The login page is the first page that users see when they launch the SENSATION application. The user will enter a username and password (if they

already have an account) or create an account on this page (if the user does not have one). Users can access the applications via this page. The login and account creation functions are used to identify users who are using the application. Figure 2 depicts the SENSATION login page in action.

Figure 2: SENSATION login page.

The following page is the English level page, which allows users to select their English level. Users will benefit from the ability to select their English level because the material displayed to them will be tailored to their level of English. Users can choose between three English levels: low (individual words), medium (simple phrases), and high (communicating needs). The application will automatically display the material based on the English level selected. Figure 3 depicts the display of the SENSATION English level page.

Figure 3: SENSATION English Level Page.

The home page is the primary display that is accessible to all users (all English levels). This page displays six main options: learn (learning material), practice (practice material), test (taking a test), games (interesting games), information (about SENSATION), and developer (development team). Figure 4 depicts the homepage display.
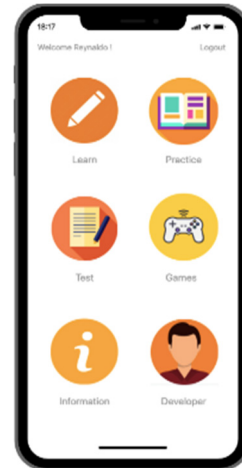

Figure 4: SENSATION Homepage.

Figure 5 shows the page tenses that are available on the learn page. The user will select the tenses to be studied from four options on this page: present, past, future, and past future. Users will have an easier time learning tenses because they have been grouped so that the existing tense groups are easy to remember.
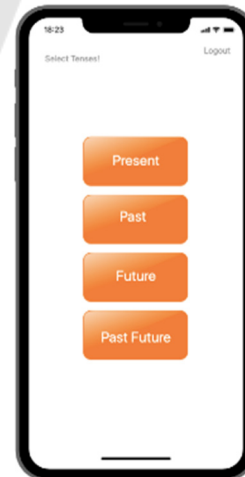

Figure 5: SENSATION Tense Page.

Page tenses includes the presentation page, as shown in Figure 6. The information on this page is about the simple present test. Because the sensation is intended for Indonesian users, the instructions for the introductory material are in Indonesian.

Figure 6: SENSATION Presentation Page.

The user is given a Test Page to assess his ability using the six available test options. Starter, verb, speaking, listening, expression, and idiom are the options provided. Users are free to select from the available test options. The SENSATION automatically adjusts the test entries based on the English level selected on the previous page by the user. Figure 7 depicts the display of the test page.

Figure 7: SENSATION Test Page.

The practice page, as shown in Figure 8, is designed for users who have previously tested. The test level was adjusted by SENSATION based on the user's current English level. Users can take listening, speaking, reading, and writing tests on this page. This will allow users to practice their basic English skills.

Figure 8: SENSATION Practice Page.

4.2 Discussion

English is referred to as a widely spoken first or second language, particularly among people who do not share another language, even though it is not the dominant language in that country. In this case, English for news and information is commonly used as a means of exchanging information and news. Approximately 80% of machine data is interpreted and stored in English. The majority of satellite correspondence is in English. English is used in more than half of the world's newspapers. In many countries where English is a minority language, there is at least one English-language newspaper. In India, three thousand English-language magazines have been distributed. Many countries broadcast English-language television news. Protesters in every country use signs written in English due to the influence of broadcasting. As a result, proficiency in English has emerged as one of the most valuable assets for competing in the global era.

4.2.1 Media Expert Validity Test

Initially, four media experts validated the SENSATION application. The validity test is performed in collaboration with experts in the design and system of the sensation. The goal of this validity test was to see if the development of the sensation required some guidance from a group of English teachers and experts (lector). Figure 9 depicts the validity test result of the "sensation" by media experts.
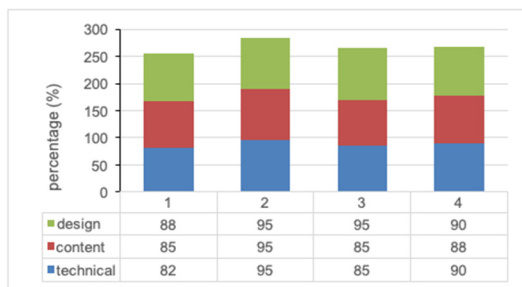
Figure 9: Validity Test Result by Media Experts.

A Likert-scale questionnaire was used to conduct the validity test by media experts. The score was calculated and converted into a percentage. Technical, content, and design indicators are used in the evaluation. Technical indicators include the system's technical capability. Content indicators include an application system that displays content based on user input, and design indicators include system function compatibility with the initial design of the SENSATION application. The media experts' validity test aims to detect any errors or bugs in the application.

According to Figure 9, the results of the media experts' validity test show that the percentage is greater than 80%. Based on the percentage validity test, it is possible to conclude that the SENSATION application was developed very well in terms of technique, content, and application design. As a result, the SENSATION application is extremely simple to use.

4.2.2 Material Expert Validity Test

A validity test was performed on a sample of four experts, with four indicators used as part of the evaluation. Purposive sampling was used to select the sample of ten experts, including lecturers and English teachers. Material experts conduct validity testing to determine whether the content matches the application's initial purpose and design. Figure 10 depicts the findings of the media experts' validity assessment.
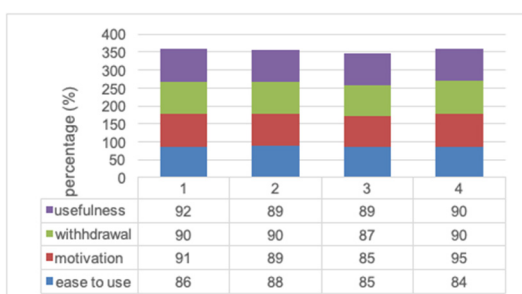

Figure 10: Validity test result by Material Experts.

Aspects of evaluation include usability, motivation, withdrawal, and usefulness. Content that is easy to access, learn, and apply in everyday life is included in easy-to-use indicators. Indicators of motivation include whether the content motivates users to learn and whether the content motivates users to improve their English mastery. Evaluation withdrawal indicators include whether the content can entice users to use the application and entice users to learn English using the SENSATION application. Finally, usefulness assessment considers whether the content in the SENSATION application is beneficial to users, particularly in terms of improving English mastery.

According to Figure 10, the results of the media experts' validity test show a percentage of more than 80%. According to the percentage-based validity table, the content of the SENSATION application is very good in terms of ease of use, motivation, withdrawal, and usefulness.

Based on the results system and material validation, the SENSATION application met the requirements of a mobile-based learning medium.

SENSATION is expected to provide three major benefits that will serve as supplements, complements, and substitutes.

1. Supplement
The SENSATION application's supplement functions refer to optional characters, such as "users have freedom of choice." In this case, users are free to select provided features in the SENSATION. Users can also access the application at any time and from any location.

2. Compliment
In this case, the SENSATION augments the material designed to supplement English learning in the classroom. As a bonus, because it is designed for Indonesian society, it also includes introductory material in Indonesian to make it easier to understand. The SENSATION material is programmed in this case to serve as reinforcement or additional material for Indonesian users.

3. Substitution
The goal of SENSATION is to provide an alternative English learning platform where anyone can manage their learning activities in accordance with their own time and daily activities. As a learning alternative, the SENSATION provides users with time and material to study flexibility.

4.2.3 Test of User Acceptance

The next writer completed the testing process after completing the development of the SENSATION application. A testing activity is a set of steps that can determine whether or not software contains errors when SENSATION is already in the user's hands (bugs). At this stage, testing is performed to ensure that the application's functionality is operational and to evaluate the application's performance when used by users. This testing will also determine the level of user acceptance of SENSATION. The author can determine the level of acceptance of the validators, who are English practitioners, teachers, and students, using this test. Where this test can help system developers in the development of the SENSATION application

The SENSATION application was first tested on a group of 24 English teachers and 640 students from 12 different schools, which included four elementary schools, four junior high schools, and four senior high schools. The sampling is based on students' and teachers' willingness to try out the application. The sampling strategy is also based on the application's original goal of being able to cover all education sectors from elementary school to senior high school. Figures 11 and 12 show the findings of the testing research.
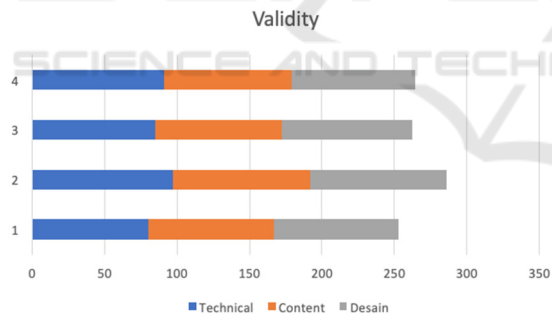

Figure 11: Design Validity Result.

When determining the level of user acceptance of the SENSATION application, factors such as functionality, user-friendliness, benefits, ease of implementation, applicability (if applicable), comfort, ease of use, and understanding are all taken into account. According to the questionnaire results shown in Figure 11, average users choose the option "strongly agree" with an intensity of 50-90% in every aspect of the assessment. Figure 12 illustrates the testing results in greater detail.
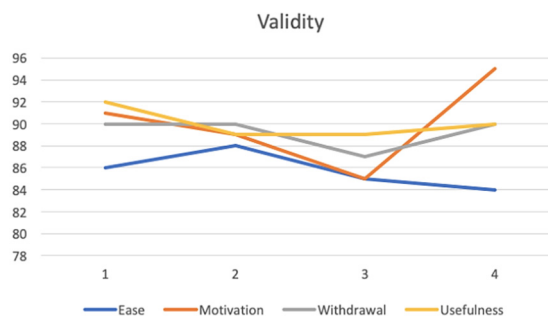

Figure 12: Material Validity Result.

The results of this test are useful for determining the level of user acceptance in SENSATION application development. According to Figure 12, the dominant value is strongly agreed, followed by agreeing for the nine assessment indicators. According to Figure 12, the level of acceptance of some users indicates that they strongly agree that SENSATION has good aspects of functionality, benefits, ease of implementation, and applicability. According to Figure 12, the majority of users "strongly agreed" that SENSATION has good aspects of the application that are needed: it is comfortable, easy to use, and easy to understand. Finally, almost all users stated in Figure 12 that they strongly agreed that SENSATION has very good user-friendliness.

Based on the results of the user acceptance test, it is possible to conclude that the majority of users are satisfied with the SENSATION application. The author can then use these results as data in the next stage of application development, namely the distribution stage. This stage entails distributing applications to a larger number of consumers.

5 CONCLUSION AND RECOMMENDATION

The SENSATION application is an effort to create mobile-based English learning media aimed at Indonesian language learners. The SENSATION application development process is still in its early stages (Version 1). SENSATION is very good in terms of systems and content, according to the results of validation by media experts and material experts. According to the testing results, the SENSATION application has a high level of user acceptance. The study's findings are then used to make recommendations for the next stage of development. It is hoped that the development of this application will assist users, particularly Indonesian-speaking users, in learning English at their own pace.

Furthermore, SENSATION application development can be used as a model for the creation of similar applications as well as complex applications for English learners.

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