Mandarin M-Comic Application Design in Supporting Mandarin Vocabulary Learning

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Abstract. Smartphones are a companion for every young generation in everyday life. Nowadays, conventional learning that tends to be monotonous would be able to utilize mobile applications as an alternative learning media. During this time students have difficulty in memorizing and applying vocabulary into everyday conversation. Therefore, the problem in this research is the design of learning applications that make it easier for students to learn vocabulary. Besides that, students also have difficulty in understanding how to use vocabulary, as well as the context of use in daily conversation. This study uses a survey method of 34 students selected with a purposive sampling technique that was conducted for two months. Survey data were analyzed to find out the needs of students in the application of learning Mandarin vocabulary which is fun and informative so that it becomes the basis in determining the design of Mandarin comic strip applications. The survey results show that there is a need for new digital learning media to be entertaining, which can support learning Chinese vocabulary. Through this research, the author offers a Mandarin comic strip (M-Comic) application design, as well as a design feature that will be developed by the author in the future.

1. Introduction

21st Century is a new revolutionary era, the world of education is expected to improve the quality of human resources by preparing those who can survive in this competition in the era of the industrial revolution 4.0 [1]. The presence of Information and Communication Technology in the world of education has a major influence on the learning process. Learning methods using internet technology have enabled users to carry out the learning process anywhere and anytime with the help of devices such as computers and smartphones. E-Learning makes students more independent, because students will
realize that at certain times they have to complete their assignments online [2], and this allows learning to be carried out at anytime and anywhere [3]. E-Learning systems and applications are increasingly prevalent in various universities and companies. The concept of e-Learning is increasingly developing because it has advantages over conventional learning systems [4]. This is one of the technological trends in the educational era 4.0, indicating there will be a time when humans, technology devices, learning materials, and services will form new ecosystems consisting of three components of "Smart", "Digital" and "Network" [5]. Education 4.0 is a response to the needs of the Industrial Revolution 4.), where people and technology are aligned to the latest possibilities [6].

Referring to "Smart", "Digital" and "Network", the Mobile assisted Language Learning (MALL) is a learning model that can be adopted and developed in foreign language learning today. With the development of information technology and the increasingly common use of smartphones among students, it is appropriate that Mandarin learning in the classroom is also supported by cellular-based learning. Applications that can be downloaded and installed on student cell phones are currently limited in the form of dictionaries and game applications. Its use on mobile phones is also only oriented to use as a source of information media for learning. Thus, instructors and application developers are challenged to create more diverse and exciting learning applications. Research on the use of MALL to learn foreign languages, especially Mandarin, has been carried out to overcome the problem of lack of Mandarin-speaking human resources, as well as to assist Mandarin learning at the elementary and college levels. MALL learning design is a learning application that can be downloaded by students on a smartphone and provides Mandarin learning solutions that suit students' needs [7] [8] [9].

Based on the educational background of 4.0, prior research, and an initial survey of students' needs for interesting new learning media, the research team was encouraged to create a learning media in the form of applications. Thus, this study uses the concept of MALL learning models in learning Mandarin vocabulary. This study aims to create concepts and designs from application features based on pictorial stories that are entertaining, to support learning Mandarin vocabulary.

2. Methods
This study uses a survey method of 34 Chinese Literature students at BINUS University 1 and 2 years. Respondents were selected by purposive sampling technique, where the authors determine several criteria to get similar responses. The criterion is to have studied Mandarin for a minimum of 6 months and a maximum of 18 months, and have Mandarin skills and vocabulary equivalent to level 3 Chinese Proficiency Test (HSK). This survey aims to determine the conditions of learning Mandarin vocabulary and student needs for applications that can support learning Mandarin vocabulary. Data is collected from the beginning of February to March 2020 for two months.

3. M-Comic concept and Application Design
3.1. The concept of making M-Comic application
During this time, students have difficulty in understanding the meaning and applying vocabulary in everyday conversation. Data obtained from a survey of 34 Chinese Literature students shows that there is a need for an entertaining mobile application that can support learning Chinese vocabulary among Chinese Literature students in BINUS University 1 and 2 years. Students expect that in the future there
will be applications available regarding the use of vocabulary, not limited to dictionaries and games, but in the form of entertaining and interesting comics. Thus, researchers think that comics can become exciting new learning media.

Comics are not only funny reading, but this is also a method used to practice all language competencies. Students feel comfortable learning by reading comics and the classroom atmosphere becomes more interesting and enjoyable [10]. From 34 respondents, there were 8 respondents (23.5%) who read comics every day, 25 respondents (73.6%) sometimes read comics and only 1 respondent (2.9%) did not read comics. Comics can be an alternative new learning media to support Mandarin learning.

Comics, as a learning medium, have long been applied and can have a positive impact during the learning process. Besides being fun, comic media is also used as a first step to arouse students' interest in reading, especially those who don't like to read. Aside from being comic, that is entertaining, fun, and educative, comics are also a bridge to increase reading interest. Digital comics make learners' perceptions very positive towards learning vocabulary, so they will use this learning medium continuously to improve their abilities [11]. So, if the comic media increases the participants' interest in reading, the participants' ability in memorizing vocabulary will also increase. The survey shows that as many as 32 respondents (94.1%) said they would be happy and want to learn Mandarin vocabulary if there were illustrated stories/comics as additional learning material. This is because digital comics are one form of visual learning media that can support learning. Dual Coding Theory (DCT) applied to comic media learning proves that reading text comprehension is better because it is supported by visual learning [12]. Through the survey results, it is known that as many as 31 respondents (91.1%) like the audiovisual learning style, so researchers need to involve auditory skills after visual abilities in application development.

Students prefer to access learning material through their smartphone, which is a combination of audio and images [13] [14]. From the survey results and the experience of researchers in research and teaching, a picture story application concept emerged as a new learning material, which is entertaining, involving visual and auditory abilities, and aims to support learning Mandarin vocabulary. This application will be named "M-Comic", "M" which is "Mandarin", where comics will be used to support learning Chinese. "M" also means "Mobile", where the application can be used anywhere and anytime.

3.2. M-Comic Feature Design
The author will first survey 48 first-year students of Chinese literature, BINUS University, who took the Chinese Language I and II courses in the first school year. After the student feedback is obtained, the writer and the team design the M-Comic application. The material is taken from textbooks used by students in these courses. The vocabulary chosen is also based on the level of vocabulary in the Chinese Proficient Test (HSK) or equivalent to level 3. After the survey data has been processed, the writer designs the concepts and storyline of the pictorial story. Students will be involved to make comic strips according to the concepts and paths given. Then, the voice will be filled for a conversation on the characters in the comic strip.

The trial will be carried out twice. The first trial is to get feedback from students and instructors
in terms of appearance and application features. The second trial is to see the effect of using the M-Comic application in learning Mandarin vocabulary on students.

**Figure 1.** Design development and application trials

M-Comic Apps consists of 3 main views, namely: vocabulary list, which will be studied which will be divided by levels in the Chinese Proficiency Test (HSK) levels 1-3; The content of the pictorial story, which is in the form of a short story, and features to bring out the sound of the character of the pictorial story; Material summary, which is the meaning of the vocabulary, explanations of usage and examples of other sentences.

**Figure 2.** Flowboard M-Comic application design

4. Conclusion
From the data obtained, there is a need for students for the existence of M-Comic that entertains and supports Mandarin vocabulary learning. From the learning styles of students who tend to like audio-visual learning styles, researchers have developed learning concepts that can develop students' reading skills because most respondents have also read comics, and they like learning vocabulary through picture stories. Students who like to read comics will have twice the vocabulary mastery than children who do not like to read comics [15]. This encourages researchers to develop the concept of learning Chinese through e-comics. The design put forward by the researcher is considering comic strip as new alternative media and a future concept of Mandarin learning media. In its entertaining and interesting form, it will improve students' interest in learning Mandarin, and to make learning access easier, it needs to be digitalized so it is not limited by time and space. Therefore, researchers come up with digitalized Mandarin comic strip concept, called “M-Comic”. Students will be brought into a context of conversation through the comic strip storyline and presented digitally via their respective mobile phones. Students will know and understand the context of certain vocabulary in daily conversation through this M-Comic application. Student ability in memorizing and applying vocabulary in daily conversation will increase in more exciting way to learning.

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