The Role of the Mandamonic Games in Supporting Mandarin Learning at Elementry School

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Abstract. Foreign language education has begun to combine conventional education with mobile learning or "M-Learning". M-Learning offers a modern way to support the learning process through mobile devices, such as handheld computers and tablets, MP3 players, smart phones and cellphones. This study explains Chinese learning through smart phones among elementary school students. Students' interest in playing games, especially on smart phones, is the background of researchers designing Chinese learning applications by emphasizing game based learning. Before designing a smart phone game, researchers first conducted a survey of 129 elementary school students in grades 1-6 in two private primary schools in Jakarta about the use of smart phones and student interest in playing educational games. From the survey the researchers designed a game application called "Mandamonik". This application consists of three types of games, namely memory games, puzzle games and word shoot games. The author asks 33 students to play the game. From student feedback, 85% of students consider Chinese learning, especially vocabulary mastery, can be fulfilled with the Chinese Character game.

1. Introduction

Chinese learning in Indonesia developed very rapidly after 2000. This is because Chinese has been allowed to be taught generally in Indonesia. Chinese learning starts from kindergarten to university level. From research on the conditions of Chinese teaching in Indonesia by spreading through the distribution of questionnaires to 594 respondents consisting of elementary school students to university students including Chinese instructors and interviews with 8 Chinese experts in Indonesia, it can be concluded two things: 1) Interesting Mandarin teaching materials is very necessary; 2) The application of learning as a set of teaching materials and textbooks for independent learning is also very much needed [1].

In the process of learning Chinese, most learners find it difficult, especially in learning Chinese Character. To help elementary school students learn Chinese, especially Chinese Character and its meaning, the researchers used technology to learn Chinese via mobile games. Chinese learning through games becomes a better solution for children than traditional learning. Researchers introduce the Mandamonic method, which is a combination of vocabulary learning with educational games [2].

The use of gamification and mnemonic methods in game content is a strategy to improve memory in various ways. Gamification and mnemonic methods show positive results in the learning environment. This game refers to elementary schools, where students are 6-12 years old. Based on the pre-test and post-test results, this game can improve students' Chinese learning outcomes [3].
2. Literature Review

2.1 Mobile Learning

The phenomenon of increasingly widespread iPhone or Android cellphone users has not surprised educators. This has given rise to mobile learning (often "M-Learning"). Language educators show interest in how to learn languages using devices on mobile phones [4]. The use of cell phones in vocabulary learning (Vocabulary Learning abbreviated as VL) is more acceptable for language learning. Several studies have been conducted on the effect of Mobile-assisted language learning (MALL) on vocabulary learning and the teaching process has developed rapidly, and many scientists have the same opinion about the role of mobile phones in VL. Technology in general has a positive effect on VL [5]. Research on the advantages and disadvantages of students by using the use of tablet devices (specifically iPad 2) in English video product assignments was also carried out in Japan. The study also examined students' perceptions when they used a tablet to see if they could make it a learning tool. [6]

Research on the benefits, challenges, and obstacles of mobile learning to support teaching and learning was also carried out. Studies show that M-Learning as distance learning brings great benefits to society because learning is not bound by time and place. [7] Mobile-based learning is one alternative learning that can be implemented for intelligent students who need a unique approach [8]. Learning will be more comprehensive if accompanied by game learning because learning through games makes students happy in learning. Game-based learning models have been developed and used as solutions [9]. The function of the cell phone as a language learning tool has provided the experience of learning English in 24 adult students. This shows that cell phones are an alternative source for learning vocabulary and this meets the needs of a more flexible time and place in learning [10]. The use of iPads by English learners in Japan shows the benefits of using iPad for speed in understanding English videos [11]. The use of mobile phones in creating a learning experience outside the classroom makes students interested in learning by exploring mobile learning experiences with their own mobile devices [12].

2.2 Game Based Learning

Game-based learning is a trend that has been implemented in many ways including workplace training, education, and social media [13]. In recent years, electronic games have become important in the lives of children and adolescents. Children obtain informal digital literacy through games that are not given much attention by educational institutions. Multimedia design for education must combine interactive multimedia features with the most effective technological learning. [14]. Research on the effectiveness of Digital Game Based Learning (DGBL) shows that game design should contain more specific game elements to make it more interesting. [15]. Learning with experience is often more efficient than learning in class. The trick is to provide the learning experience needed to respond to current challenges by using games in education. The goal is to offer a variety of knowledge and create opportunities to apply knowledge in cyberspace, so as to support and facilitate the learning process. Innovative education, such as learning based games, is considered the most appropriate [16]. Using mobile games in education by combining places and active learning is very fun. The effects of a moving city game called Frequency 1550, which was developed by The Waag Society to help students in their first year of secondary education study the history of Amsterdam in the Middle Ages. After observing, students who played the game gained more knowledge about the Middle Ages Amsterdam. This shows that location-based technology and game-based learning have an impact on students' knowledge and motivation. [17]

3. Research Methods

This research uses survey and experimental methods. The author first conducted a survey of 129 elementary students from the Immanuel School and Sang Timur Christian Elementary School. After the student feedback is obtained, the writer and the team design a game containing vocabulary, the material is taken from Mandarin elementary school grades 1-6 arranged in three languages, namely Indonesian, Chinese and English. The author of the book is the author herself. After the survey data is processed, the writer designed the game called Mandamonik. This game consists of 3 parts, namely: 1. Puzzle
4. MANDAMONIK APPLICATION

4.1 Pre Mandamonic Application Design Survey Results

Before designing a Mandarin learning game called "Mandamonik", a survey of 129 smartphone users in Jakarta from 1-6 elementary schools in Jakarta was conducted first. The survey was conducted on 72 male and 57 female students. From the survey results can be seen that as many as 91 students have smartphones. There are 91 students who used the Android application. As many as 48 students said that they liked to play educational games using smartphones. As many as 46 students said that they had played an educational game in Mandarin. As many as 99 students said that Game Based Learning helped them in learning Chinese vocabulary and they were interested if a game was designed to help them memorize the Chinese vocabulary. Therefore, researchers then designed a game that contained vocabulary in Chinese textbooks. The vocabulary in this design is taken from Chinese learning textbooks compiled by the author herself. The vocabulary in this book consists of 11 categories, which are fruit pronouns, numbers, pronouns for people, family members, animals, school supplies, food and drink, objects, vegetables, compass directions and places.

4.2 Mandamonik Design

Mandamonik is a game application for memorizing Chinese vocabulary. The application is designed in two languages, Chinese and Indonesian. The application design is as follows:

"Mandamonik" is the name of the application for learning Chinese. Learners simply touch the screen that says the word or picture. The "Permainan" or "Game" button when it is touched will display three types of games. "Pengaturan" or "settings" contains information about the origin of the game background sound. "Tentang" or "About" explains the name of the person who designed the game. "Keluar" or "Exit" means out function to exit the game application.
Figure 3 Jenis Game Types

Three types of games in this application are memory games (Memori), puzzle games (Pasang Gambar) and word shooting games (Bidik Kata).

4.3 Mandomonic Game Application

The Mandamonik Game application is designed to help students memorize daily vocabulary. Vocabulary that is equipped with Chinese Character and Hanyu Pinyin besides helping students memorize Chinese Character and how to read it. This application contains three types of games. Each type of game is equipped with a duration of play (Waktu). The faster the game is completed, the shorter the time displayed. This game is equipped with a score (Skor). If the player wants to stop or change another game, he/she can press the button "pause".

4.3.1 Game Memory.

Figure 4 Game Memory

This game is a closed card and the player looks for a pair of cards consisting of meaning and Chinese character and Pinyin (how to read). Players touch one of the cards first and try to guess the pair in the closed card. If a player has met its pair, both cards will be opened. If a player has not met its pair, the player will continue to look for its pair while remembering the Chinese character and words that has been opened previously. Repetition of the game will change the layout of the cards from the previous game so that the time achieved from the previous game may not be faster.

4.3.2. Game Puzzle. This game is to sort the pieces of the picture and form a whole picture like in the right corner image.

Figure 5 Game Puzzle 1

The way to sort images is to simply touch the piece and place it where the player wants it to be.
4.3.3 Word Shooting Games. This game places a + sign in the word which means it matches the Chinese Character in the left hand corner. The + sign will shift when moving the mobile phone.

If the + hint has been placed on a word that matches the Chinese Character as in the instructions, then the player immediately presses the + sign on the intended word. The addition of scores and calculation of time stops when the answer is correct.

4.4. Students' views of Mandamonik

After the application was designed, it was tested on 33 elementary students. The responses from students who played this game were 32 students who thought Mandamonik was fun to play. All students agree that Mandamonik makes Chinese learning interesting. The appearance of the game is considered attracting, and puzzle games and memory games are interesting games for learning Chinese. Not all students agree that the Word Shooting Games is the right game to play in learning Chinese because it is considered more difficult to play. The writing in Mandamonik is considered very clear and easy to understand. All students agreed, through the Mandamonik game, they become more interested in learning Chinese.

5. Conclusion

Chinese learning through games can motivate elementary school students to learn Chinese. In addition to learning Chinese Character, students also learn how to read (Pinyin) and tone (Shengdiao). Students also learn to memorize Chinese characters through Memori. This game can sharpen students' memory if memory games are played regularly. In addition, the speed in memorizing Chinese characters and their meanings can also be increased because by independent learning, students are not bound to time and place. The more often this game is played, the duration of play will also decrease and the game will be completed more quickly. The weakness in this game is the absence of sound when the player has found a pair of words for the game. In addition, there is also no sound in the puzzle game, which sounds an image that has been compiled. Similarly, in word shooting games, there is also no sound when students shot the right words. Subsequent research should refine this application so that utilization is more perfect.
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