

# Improving Students' Interest to Learn Mandarin with Mandamonik Game in Three Languages

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**Abstract:** Foreign language education has begun to incorporate 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, smartphones and mobile phones. This study explains the learning of Chinese through M-learning with a smartphone. With the development of technology, the use of smartphones among elementary school students is also increasing especially for games. Students' interest to play games, especially on smartphones becomes the background for researchers to design the Chinese learning by emphasizing on game-based learning. Researchers before designing the smartphone games first surveyed 129 elementary school students grade 1-6 in two private elementary schools in Jakarta about the use of smartphones and the interest of students to play educational games. From the survey, researchers designed a game application called "Mandamonik." This application consists of three types of games, namely memory game, puzzle game and word crosshairs game. The authors asked 33 students to play the game. From the students' feedback, it is known that 85% of students consider the game Chinese Character helps Chinese learning especially mastery of vocabulary.

## 1 INTRODUCTION

Chinese learning in Indonesia starts from kindergarten to university level. By distributing questionnaires to 594 respondents consisting of elementary students to university students and Chinese teachers, also interviews to 8 Chinese experts in Indonesia for the research on the condition of Chinese teaching in Indonesia can be concluded two things, namely 1) there is a need for interesting and illustrated mandarin teaching materials; 2) The learning application as a tool of teaching materials and textbooks for independent study is also very much needed by Indonesian students (Zhang SL, Ying Y, 2012). In the process of learning Chinese language, most learners find it difficult especially in learning Chinese Character. To help elementary school students learn Chinese, especially Chinese Character along with their meanings, the researchers use technology which is via mobile games. Chinese learning through games becomes a better solution for children than the traditional learning. Researchers introduce the Mandamonik method of combining vocabulary

learning with educational play (Ying Y, Rawendy D and Arifin Y, 2016). The use of gamification and mnemonic methods into the game content is a strategy to improve memory in various ways. The gamification and mnemonic methods show positive results in the learning environment. This game refers to the elementary school, where students are aged 6-12 years. Based on the pre-test and post-test results, this game can improve students' learning outcomes (Rawendy D, Ying Y and Arifin Y, 2017).

## 2 RESEARCH METHODS

This research uses survey method and experiment method. The authors first surveyed 129 elementary school students from Immanuel School and Sang Timur Christian Primary School. After the student feedback is obtained, then authors design the game containing the vocabulary taken from the Mandarin book for elementary students grade 1-6 which is arranged in three languages namely Indonesia, Chinese and English. The book is arranged by the authors. After the survey data was processed, the

authors design the game called Mandamonik. This game consists of 3 parts: 1. Puzzle Games, 2. Memory Game; 3. Word Crosshairs Game. Due to time limitations, this game is only played by 32 students consisting of 15 students from Harapan Kasih and 18 students from Immanuel. The study was conducted from September 2016 until April 2017.

### 3 MOBILE LEARNING

#### 3.1 Mobile Learning

The phenomenon of iPhone or Android phone users is increasingly widespread, and it is not surprising among educators. This has spawned mobile learning (often called "M-Learning"). Language educators are interested in the process of learning a language using an application on a mobile phone (Jones RG, 2011). The use of mobile phones in vocabulary learning (abbreviated as VL) is more acceptable for language learning. Several studies have been conducted on the effects of Mobile-assisted language learning (MALL) on vocabulary learning. The teaching process has grown rapidly, and many scientists have the same opinion on the role of mobile phones in VL. Technology, in general, has a positive effect on VL (Afzali P, Shabani S, Basir Z and Ramazani M, 2017). Research on the advantages and disadvantages of students using the tablet devices (iPad 2 only) in the assignments of English video product was also done in Japan. The study also examines students' perceptions when they use tablet devices to see if they can make it a tool for learning (Brown M, 2012). Research on the benefits, challenges, and hindrances of mobile learning to support teaching and learning was also done.

The study shows that M-Learning as distance learning brings great benefits to society including the learning that can be done anytime and anywhere (Mehdipour Y, Zerehkafi H, 2013). Mobile-based learning is one of the learning alternatives that can be implemented for smart students who need a unique approach (Ying Y, Mursitama TN, Oktriono K and Abbas BS, 2017). Learning will be more comprehensive if accompanied by game learning because learning through the game makes the learning process more enjoyable for the students. Game-based learning models have been developed and become the solutions (Ying Y, Mursitama TN, Lin X and Yetty, 2017). The function of the phone as a language learning tool and the students' opinions after the mobile learning experience of 24

adult learners show the phone as an alternative source for adult learners to learn vocabulary and to meet the special needs of adult learners who need more flexible time and place in learning (Hu Z N, 2013). The use of iPads for the English learners in Japan shows some benefits such as speed in viewing English video (Brown M, Castellano J, Hughes E and Worth A, 2012). Mobile phone usage in creating an out-of-class learning experience makes students interested in learning by the method that explores the mobile learning experience with their own mobile devices (Kim D, Rueckert D, Kim DJ and Seo D, 2013).

#### 3.2 Game based Learning

Game-based learning is a trend that has been implemented in many ways including workplace training, education, and social media (Pho A, Dinscore A, 2015). Research on the effectiveness of Digital Game Basic Learning (DGBL) shows that the game design should contain more specific game elements to be more interesting. (AnissaA, Elena P, Nuñez C and Jan V L, 2016). Learning through experience is often more efficient than learning in class. The trick is to provide the learning experience needed to respond to the current challenges, i.e. to use games in education. Innovative education, such as learning-based games, is considered the most appropriate (Pivec M, Dziabenko O, 2004). Using mobile games in education by combining places and active learning is great fun. The effect of a mobile city game called Frequency 1550, developed by The Waag Society to help students in the first year of secondary education to study the history of Amsterdam in the Middle Ages. After being observed, the students who played the game got more knowledge about the Amsterdam in the Middle Ages. This shows that the location-based technology and game-based learning have an impact on students' knowledge and motivation (Jantina H, Admiral W, Akmerman S and Dam GT, 2009).

### 4 MANDAMONIK APPLICATION

#### 4.1 Survey Results before Mandamonik Application Design

Before designing a Mandarin learning game called "Mandamonik", first the survey of smartphone usage was conducted towards 129 students in grade 1-6 elementary school in Jakarta. From the survey

results can be seen that 91 students have a smartphone. There are 91 students using android apps. A total of 48 students said that they like to play educational games using smartphones. A total of 46 students said they had played Mandarin-language educational games. A total of 99 students said game-based learning could be helpful in learning Chinese vocabulary and they are interested if there is a game designed to help them memorize the Chinese vocabulary. Therefore, the researchers designed the game containing the vocabulary in Chinese textbooks. The vocabulary in this design is taken from a Chinese study textbook compiled by the author. The vocabulary in this book consists of 11 categories namely fruits, numbers, studental pronoun, family members, animals, school tools, food and beverages, objects, vegetables, wind direction and places.

## 4.2 Mandamonik Design

Mandamonik is a game application to memorize Chinese vocabulary. The application is designed in both Chinese and Indonesian languages. The application design as follows:



Figure 1: App Front View.



Figure 2: Types of Game.

"Mandamonik" is the name of the application to learn Chinese language. Learners need to touch the screen with words or pictures. "Permainan" means game, when the screen is touched it will display

three types of games. "Pengaturan" means setting that contains information about the origin of the game background sound. "Tentang" explains the name of the student who designed the game. "Keluar" means out, and the function is to exit the game app.

Three types of game in this application are Memory game (Memori), Puzzle game (PasangGambar), Word Crosshairs game (Bidik Kata).

### 4.2.1 Mandamonik Game

*Applications.* The Mandamonik Game App is designed to help students memorize everyday vocabulary. The vocabulary is equipped with Chinese Character and Hanyu Pinyin in addition to helping students memorize Chinese Character and how to read it. This app contains three types of game. Each type of game comes with game duration (Waktu). The faster the game is completed, the shorter the time is. This game comes with a score (Skor). If you want to stop or change to another game, then you can press the "pause" n.

#### Memory Game.



Figure 3: Memory Game.

This game consists of some closed cards and players should look for a pair of cards that consists of meaning and Chinese character along with Pin Yin (how to read it). The player touches one of the cards first and tries to guess its pair on a closed card. If the player has discovered the pair, then both cards will open. If have not met, the player continues to look for a pair while remembering the Chinese characters and words that have been opened before. Repetition of the game will change the layout of the card from the previous game so that the time achieved from the previous game may not be faster because it relies on the player's memory.

**Puzzle Game.**The game is sorting the pieces of the image and forming the whole picture as in the right-hand corner image.

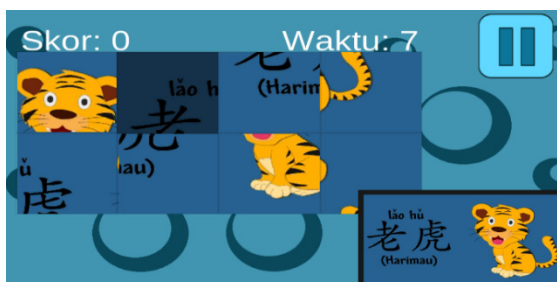


Figure 4: Puzzle Game 1



Figure 5: Puzzle Game 2

To sort the image is by merely touching the piece and put it in the desired place. Figure 5 is an example of a puzzle which is almost completed. If the image is in accordance with the instructions, then the image will automatically change into another image.

**Word Crosshairs Game.**The game puts a + sign in a word which meaning is corresponding to the Chinese Characters in the left-hand corner. The + sign will shift if moving the mobile phone.



Figure 6: Word Crosshairs Game.

If the + hint has been placed in the correct word corresponding to the Chinese Characters in the instruction, then the player immediately presses the + sign in the word in question. Thus, the addition of

scores and time calculations stalled when the answer is right.

## 5 STUDENTS' VIEW OF MANDAMONIK

After the application was designed, then it was tested to 33 elementary school students. Here is the student's response to the Mandamonik Game. Only 1 respondent answers uncertain, while 6 respondents agree and 26 respondents say strongly agree that "Mandamonik" game is fun. There are 4 respondents answer uncertain, while 12 respondents agree and 17 respondents strongly agree that "Mandamonik" Game makes learning Chinese interesting. There are 7 respondents are still in doubt, while 12 respondents agree and 14 respondents strongly agree that "Mandamonik" Games are not hard to play. Two respondents answer undecided, while 13 respondents answer agree and 18 respondents answer strongly agree that game design of "Mandamonik" is not boring. There are 4 respondents answer undecided, while 17 respondents answer agree and 11 respondents answer strongly agree that memory game is fun to play while learning Mandarin. Only one students who answers undecided, while 11 respondents answer agree and 21 respondents answer strongly agree that Puzzle Game is fun to play while learning Mandarin. Only one student disagrees or dislikes the word crosshairs game, while 5 respondents are undecided and 12 respondents agree and 15 respondents answer strongly agree that word crosshairs is fun to play while learning Mandarin. A total of 2 respondents answer disagree and undecided, while 14 respondents answer agree and 17 respondents answer strongly agree that Chinese writing on the "Mandamonik". Game is readable. There are 3 respondents who are undecided. While 15 respondents answer agree and 15 respondents answer strongly agree that "Mandamonik" Game make them more interested in learning Mandarin. One respondent does not agree if the game is easy to understand, while 3 other respondents hesitate and 16 respondents agree as well as 13 respondents strongly agree. A total of 7 respondents say they do not agree if Mandamonik game is easy to play, while 12 respondents agree that the game is easy to play and 14 strongly agree if the game is easy to play.

## 6 CONCLUSIONS

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 memory. This game can sharpen students' memory if the memory game is played periodically. In addition, the speed in memorizing Chinese character and its meaning can also be increased because, with the independent learning, students can learn anytime and anywhere. The more often to play this game the more duration of play will be reduced and then it will be quicker to complete the game. The drawback of this game is the absence of sound when the player has found the word pairs for the game. Besides, the puzzle game also has no sound when the finished picture is prepared. Similarly, the word crosshairs game also has no sound when the right words are shot. Subsequent research should improve this application for better utilization.

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