

## Learning To Write Chinese Characters Among Non-Native Chinese Learners

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### ABSTRACT

Learning to write Chinese characters is often challenging for non-native Chinese learners mainly because the writing system is completely different from the alphabetical system. Traditionally, rote learning is commonly used in the teaching and learning of Chinese characters but it is often considered as laborious. Studies indicate mobile applications (MAs) can facilitate the learning process better (Shinagawa, 2012; Wong et al, 2010) especially for non-native Chinese learners. This study is designed to compare the use of both learning methods to promote the correct order of writing Chinese characters. A hundred Level 2 Mandarin undergraduates participated in this study. They were given a Pre-Test before they were divided equally into Treatment group (TG) and Control group (CG). The CG used traditional method of rote learning to practice writing, while TG used three different MAs to practice for three weeks. Later, all of them were required to complete a Post-Test. The scores for pre-test and post-test were analyzed and compared. The results suggest that traditional and MA method give significant and positive impacts on the improvement of writing order. Further studies are needed to seek participants' preferences in learning writing order as a way to cater for their personal needs in writing Chinese characters.

**Key Words:** *Chinese character writing order, non-Chinese learners, mobile applications, traditional learning*

### INTRODUCTION

The interest of people in learning Mandarin language has increased since the blooming of China's economy and its modernization. Similarly, in Malaysia, the interest in learning Mandarin as a foreign language among the non-native Chinese learners is also growing especially at tertiary level (Tan, Hairul, Hoe & Ho, 2016). It is mainly due to the tight diplomatic and economic relationship between Malaysia and China since 1976. Many public universities in Malaysia offer Mandarin language courses for non-Chinese learners. At University Teknologi MARA (UiTM), Mandarin language courses are offered to students in both the diploma and degree programs. These students are mainly non-Chinese students. The number of students enrolled in Mandarin language courses is increasing each year. However, the increase in number of students is not reflected in the rate of achievement among these students.

Malaysia government is currently planning to improve the education system that includes Mandarin in the syllabus (Nadia Majid, 2017). The then Deputy Prime Minister Tan Sri Muhyiddin Yassin who was also the Education Minister said that Mandarin is a highly recognised language in Malaysia and Mandarin is taught not only as a foreign language but rather as a mother tongue. Those who are not of Chinese descent are also encouraged to learn Mandarin (Nadia Majid, 2017). Thus, the urgency to conduct more research on the effective teaching and learning methods is deemed as necessary to provide more alternative strategies or to improve the students' mastery of the language.

## **PROBLEM STATEMENT**

Non-native Chinese learners usually face difficulties in learning Chinese language because they do not have a supportive learning background for them to use the language (Goh Ying Soon, 2016). Moreover, the writing system for Chinese characters is totally different from the alphabetical writing system of the learners' first language, either English or Malay, which may contribute to a slow progress in their learning.

Rote learning has been traditionally a method of teaching and learning Chinese characters since thousand of years ago. Learners are used to copying and memorizing the characters (Goh, 2016). While some researchers found that this traditional technique was perceived as most effective by learners to write the characters in the correct order (Wang, 1998; Yin, 2003), other scholars (Shinagawa, 2012; Wong et. al., 2010; Chung, 2013) argued that learners may learn Chinese language best with the assistance of modern technologies. For instance, Shinagawa (2012) described how mobile apps helped learners to pick up non-western characters. Wong et al (2010) illustrated how learners are able to engage themselves with Chinese Idioms in collaborative activities with the use of mobile apps. Chung (2013) also claimed that students are more motivated to practice the basic strokes of the writing order using iPad because it allows the integration of learning Chinese into the students' daily lives. However, research on the use of mobile apps for writing Chinese characters in the correct order is rather scarce. Therefore, this research is timely essential to explore the impact of both, mobile applications and traditional learning methods for the learning of the basic strokes of writing Chinese characters among non-native Chinese learners.

## **LITERATURE REVIEW**

### **Traditional Method for teaching and learning of Chinese characters**

Each Chinese character has its phoneme and each phoneme carries a different meaning. Hence, Chinese character is considered as one of the toughest language to be learned especially among non-native Chinese learners (Goh Ying Soon, 2016). Most of the time, it can be very demotivating for students to learn Mandarin due to the difficulty of recognizing, reading and writing the Chinese characters. Xie (2000) mentioned that "Learning Chinese character is difficult because there are too many difficult characters to remember, too many difficult strokes to write, and too many difficult phonemes to read". These difficulties led to slow learning process in reading and writing. They might need to spend more time to recognize, to read and to write Chinese characters. Traditionally, the Chinese instructions are mainly based on Liu Shu (six writing) Approach and Semantic Approach. Additionally, students are often introduced to the high and frequently used characters, as well as, they are often advised to practice repetitively on characters to promote character recognition and memorization. Despite the highly rigorous effort, students do not necessarily perform well in their writing of Chinese characters.

## **Traditional Chinese characters learning strategies**

Many studies have been carried out to investigate learners' Chinese character learning strategies. Rote learning is perceived as the most powerful method to learn Chinese characters by the participants in many research.

McGinnis (1995) is the first to conduct the research on Chinese character learning strategies among the novice learners (JiangXin & ZhaoGuo, 2001). In the study, 29 students' self-reported their characters learning strategies used during a five-week summer immersion programme. The result indicated that the frequently used strategy in the programme was copying repetitively.

Wang's (1998) and Yin's (2003) surveys on the Chinese characters strategies also found the similar result as McGinnis (1995) in which rote repetition was the most frequently and preferred strategies used by the learners.

In addition, Shen (2005) synthesized others' research (Taft & Zhu, 1995; Craik & Tulving, 1975; Stein & Bransford, 1979; Taft & Chung, 1999; Shen, 2000; Cohen, 1998) and summarized that "rote memorization, graphic cues, context cues, and knowledge of radicals are all used in learning characters" (as cited in Jing Wang & Robert B. Harris, 2016).

Some researchers took a further step to investigate the effectiveness of the chosen or preferable Chinese characters learning strategies among learners. For example, Ke's (1998) studied the influence of language background on the impact of Chinese character learning among first-year non-native Chinese learners who have just completed a one year of study in Chinese language course. The findings revealed that the use of paying attention on characters component (radicals, characters stroke sequences), repeat copying, and pay attention on the graphic structure and semantic of the characters are the effective strategies for Chinese character learning perceived by the majority of participants.

Wang & Leland (2011) studied the novice learners' perceptions of character learning strategies also supported Ke's (1998) studies in that the knowing orthographic features (radicals & rules of characters) helped them to acquire Chinese characters learning.

Furthermore, Sung (2012) conducted a study to investigate the relationship between most frequently used strategies, factor underlying the use of these strategies used and students' Chinese characters performance. 95 students from beginners through advanced learners participated in this study. The study reported orthographic-knowledge-based strategies are the most heavily used and accounted 6.8% for learners' character learning performance. In 2004, Sung replicated the study among 88 first-year Chinese learners. This study found that 30.22% of variance accounted by the participants' report strategy use, which was higher than the 6.8% found in Sung's (2012) study.

The studies mentioned above have shown that learners tend to rely on the mechanical copying and mindless memorization of characters at the beginning stage of Chinese characters learning while they tend to focus on orthographic-based strategy after they have learned Chinese characters for several weeks. However, repeat copying characters does not seem effective in students' Chinese characters learning (ZhaoGuo & JiangXin, 2002).

## **Mobile learning assisted language learning (MALL)**

Technology is useful for creating new ways of learning and teaching (Bertini & Kimani, 2003). Technological advancement is leading to the development of an increasing number of computer-based devices and software applications that might be used in teaching and learning Mandarin as Foreign language (MFL).

The 2016 NMC Horizon Report describe annual findings from on-going NMC Horizon research project which designed to identify and describe emerging technologies likely to have an impact on learning, teaching and creative inquiry in education. One of the latest learning trends mentioned in the 2016 NMC Horizon Report is bringing your own device (BYOD), i.e., students bringing their own laptops, tablets, or smartphones to classroom (as cited in Chuang, 2016). According NMC Horizon report, at least 42% of colleges and universities in the US had implemented BYOD strategy since 2014. The use of learning media in Language learning produce a more effective learning and improving the quality of learning. Hence, encouraging the use of mobile devices in teaching and learning activities has crystalized in recent years.

Mobile assisted language learning (MALL) enhances student's acquisition of skills and content knowledge while providing them the benefits to learn the targeted language at anywhere and anytime. Such learning compensates busy people who lack of time to further their language learning in conventional classroom-based courses. Martin & Ertzberger (2013) reported that students with the assisting of mobile learning showed significant improvement in the attitude survey and post-test result. Others studies (Chang & Hsu, 2011; Kim & Kwon, 2012; Rahimi & Miri, 2014; Soleimani & Mustaffa, 2014) also suggested that students in the MALL group demonstrated higher achievement and motivation (as cited in Chuang, 2016).

Research done by Shinagawa (2012) provided a clue that MA might be useful to develop learners' character writing and improve their writing order as the research indicated that MA assisted learners to pick up non-western characters. Besides that, Wong et al (2010) described that MA encourages the engagement of the learners with Chinese Idiom in collaborative activities. Chung (2013) cocluded that learners are more keen to practice basic stroke order using iPad and iPad promoted the integration of learning Chinese into students' daily lives.

With the significant increase usage of mobile assisted language learning applications, there are more than 40 Mandarin language learning applications have been developed and make available in iOS or Android system at the moment (Chuang, 2016). These Mandarin learning applications can be categorized as dictionary, flashcard, Chinese alphabet (pinyin), game and Chinese characters. Meanwhile, more than 20 Chinese character learning applications are currently available in *Google Play Store* and *Apple App Store*. Nonetheless, what kind of application features meet learners' needs and why the integration of these features into their Chinese characters learning are the important issues to be addressed. Thus, attention from the Mandarin language instructor as well as the app developers to design a mobile application of Chinese characters are needed as to substantially provide positive impacts in Chinese characters learning.

## **METHODOLOGY**

### **Selection of participants**

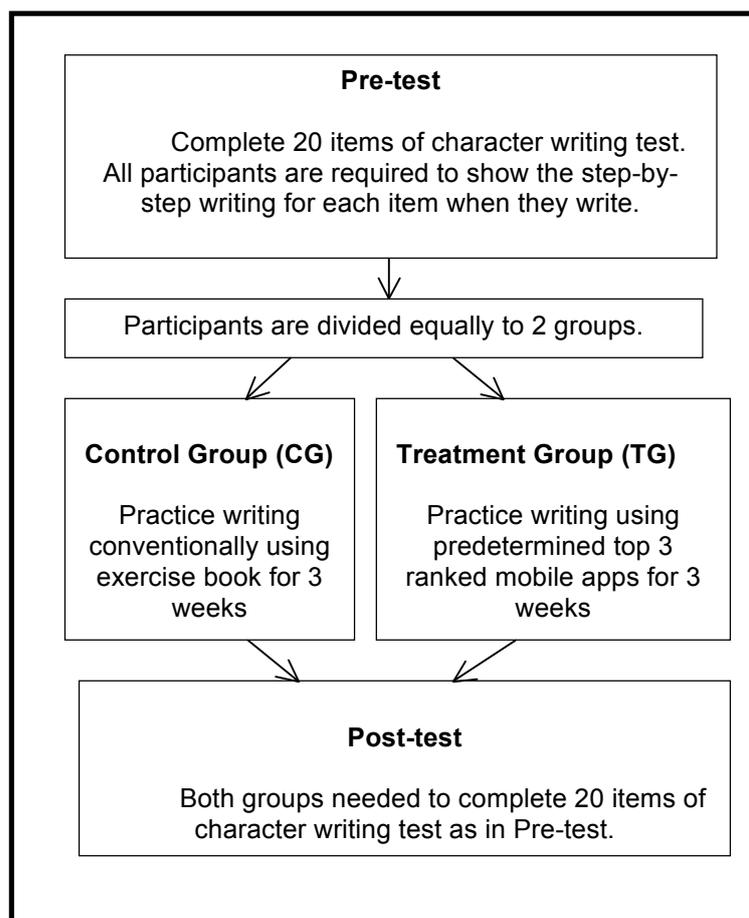
All undergraduates who enroll to TMC151 Foundation Mandarin (Level 2) will be taken in as the participant of the study. They are approximately 100 of them. They will be divided into 2 groups equally, about 50 participants in each respective groups – control group (CG) and treatment group (TG).

### **Selection of existing mobile applications**

The selection of existing mobile application is based on the first top 3 ranked mobile application available in both *Google Playstore*, which cater for Andriod mobile phone user and *Apple App Store*, which cater for I-Phone series users. Since the top 3 MAs in both *Google Playstore* and *Apple App Store* are the same, thus, 3 MAs would be chosen for TG in this study. Existing

mobile application for Chinese characters writing order learning or practice as shown below:

No	Name	Rankings	Downloads
1	Chinese Skill-Learn Chinese	4.8	1 million
2	Chinese Writer	4.2	100 thousands
3	Learn Chinese (Mandarin) Free	4.0	100 thousands



**Figure 1 Data collection framework**

### Pre-Test

All participants are required to complete a character writing test. 20 Mandarin characters from the vocabulary list of Level 1 and 2 are randomly selected as the test items for the pre-test. In this test, they are instructed to write the items in the form of a series of sequence or steps (example refers to Appendix 3) as to allow the reserchers to identify their problems or errors of their order in character writing.

### **Control group (CG)**

50 participants in this group are asked to practice character writing in a usual and traditional way (rote learning method), in which, they need to do their character writing practice routine using the writing exercise book (example refer to Appendix 4) pre-determined by the course for 3 weeks.

### **Treatment group (TG)**

Another 50 participants are asked to use top 3 ranked mobile applications pre-determined by the study to do their character writing practice routine for 3 weeks.

### **Post-Test**

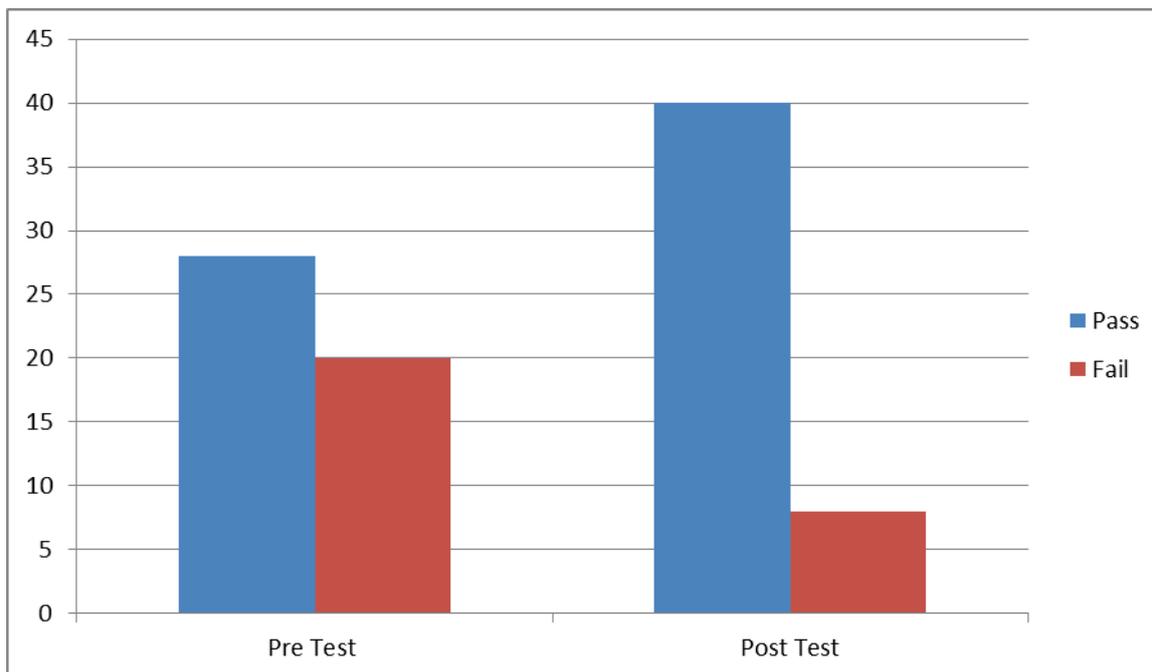
A Post-test will be completed by both CG and TG participants. The test instructions and test items are exactly the same as in Pre-test. The test scores of both pre-and post tests will be analysed and compared.

## **RESULTS AND DISCUSSIONS**

The results of the study are reported and discussed according to the objectives of the study.

### *The impact of Mobile Applications on learning to write Chinese characters in correct order*

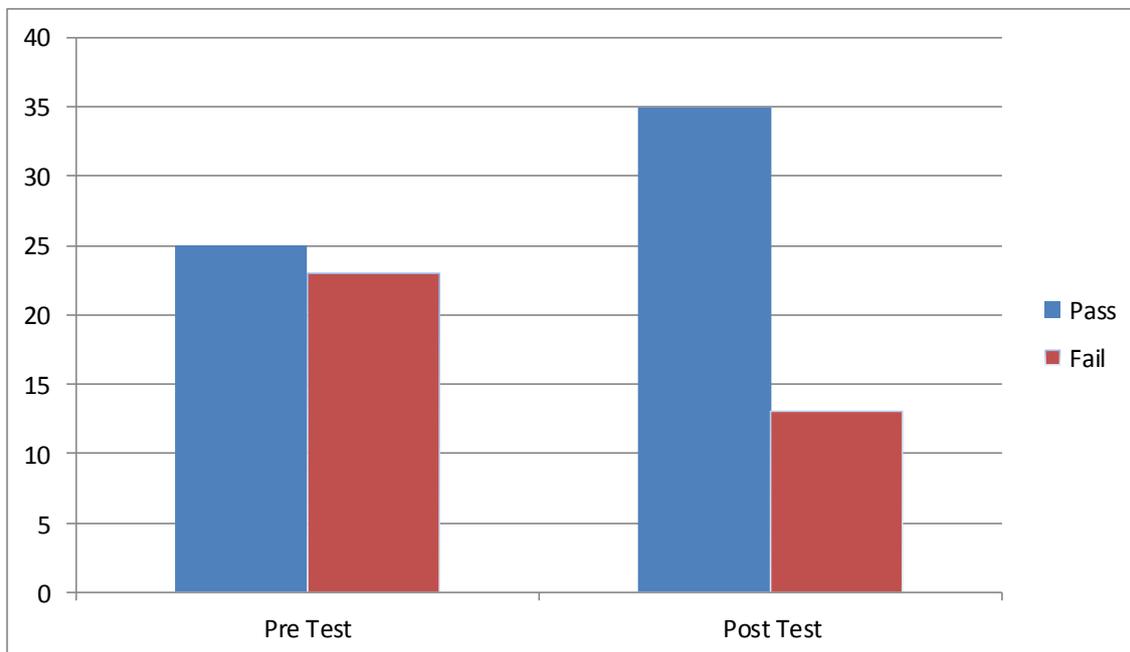
The first objective of this study is to determine the impact of mobile application on learning to write Chinese characters in the correct order. Figure 1 illustrates the performance of learners from the treatment group. These are learners who learnt character writing from the selected mobile apps. The results indicate that the use of mobile apps there is an increase in the number of learners who passed the post-test (n=40) compared to the pre-test (n=28). In comparison, the number of failures in the post-test is lower (n=8) when compared to the pre-test (n=20). From the above results, it can be inferred that the use of mobile apps has positively influenced their learning of character writing. Accordingly, the treatment has successfully reduced the failure rate in the post-test. The result of this study shows that mobile apps provide added-value in helping learners to write Chinese characters in the correct sequences. The finding is consistent with existing literature that supports the integration of mobile phones in and out of the classroom to enhance students' learning and academic performance (Ng, Luk & Lam, 2016). Ng, Luk and Lam (2016) found that there is a positive relationship between social mobile application usage and academic performance. To address objective 1, this study shows a positive impact of mobile applications on learning to write Chinese characters in the correct order. In other words, the use of mobile applications improved and enhanced the learners' performance in the post-test.



**Figure 2 Performance of treatment group in pre and post-test**

*The impact of traditional method on learning to write Chinese characters in the correct order*

Second objective of this study is to investigate the impact of traditional method on learning to write Chinese characters in the correct order. Figure 2 demonstrates the achievement of Control group who learnt character writing via traditional classroom instructions. The figure shows that there is an increase in the number of learners who passed the post-test. The results indicate that traditional classroom teaching has improved the number of passes in the post-test (n=35) as compared to the pre-test (n=25). The results also indicate that the traditional classroom teaching has reduced the number of failures in the control group. The learners in the Control Group utilized the traditional Chinese characters learning strategies that resemble rote learning. The students practice writing the Chinese characters stroke orders by copying repetitively. The result also shows a positive outcome on the use of traditional learning strategies to improve or enhance strokes order of Chinese characters. This finding is aligned with McGinnis's (1995) and Ke's (1998) study which revealed that repeat copying is perceived as effective strategies for Chinese character learning. For objective 2, the findings from the control group also shows a positive impact of traditional method on learning to write Chinese characters in the correct order.



**Figure 3 Performance of Control group in pre and post-test**

*The comparison of performances for both mobile applications and traditional method on learning to write Chinese characters in the correct order*

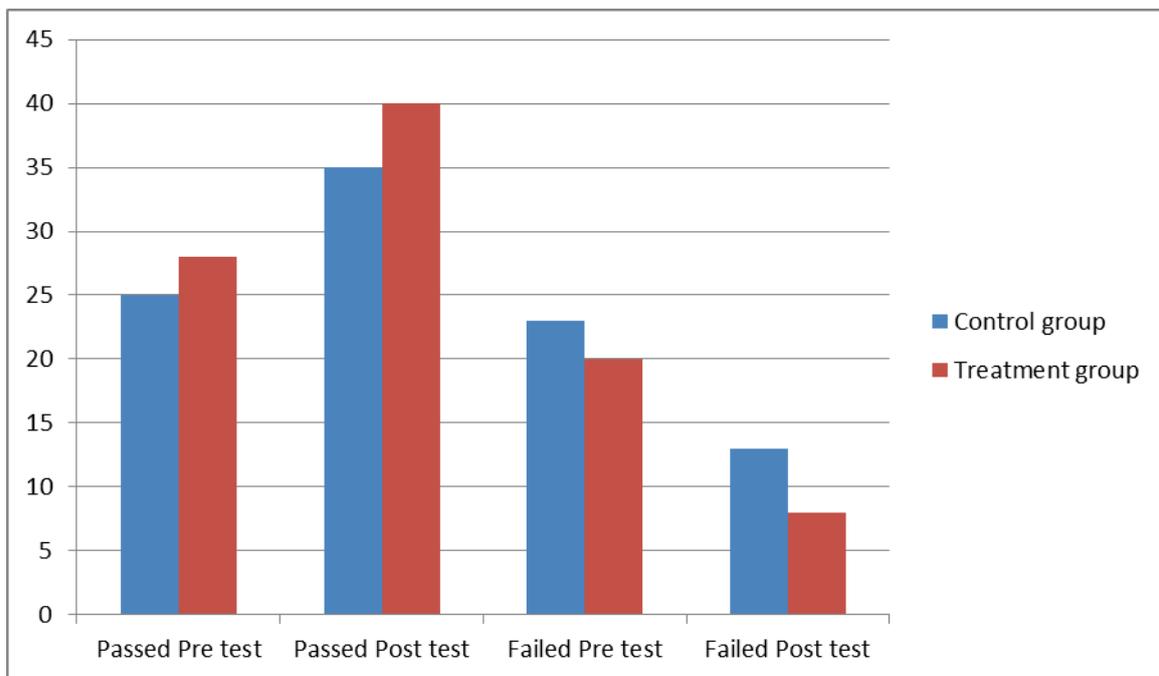
Objective three is to compare the pre-test and post-test results for both traditional and mobile app in the learning of Chinese character writing. Figure 3 shows the comparison of performances for both the control and treatment groups in learning Chinese character writing. In general, the instructions received by the learners in both groups are effective as shown by an increase in the number of passes in both post-tests. The post-tests for both the control and treatment groups also indicate a reduction in the number of failures.

Although, there is a general sense that both the traditional and mobile apps learning produced positive results in the post-test, Figure 3 shows that the increase in the number of passes for the treatment group is higher i.e. pre (n=28) and post-test (n=40) than the control group i.e. pre-test (n=25) and post-test (n=35). Also the number of students who failed in both post-tests is lower for treatment group i.e. pre (n=20) and post-test (n=8) than the control group i.e. pre (n=23) and post-test (n=13). The results show that the numbers of students who failed in both tests are lesser in treatment group than in control group.

The figure demonstrates that the improvement in Treatment group is approximately 25% and 20.8% for the Control group. Thus, the difference in passing rate is only 4.2 %. The results for comparison of Treatment and Control Group show a minimal difference in improvement for the passing rate. While mobile apps have been linked to improved performance, the effectiveness of teaching method in the treatment group does not significantly boost their learning to write Chinese characters in the correct order.

The results for comparison of both TG and CG are somehow consistent with Chang and Hsu (2011), Kim and Kwon (2012), Rahimi and Miri (2014), and Soleimani and Mustaffa (2014) who suggested that students in the MALL group demonstrated higher achievement and motivation (as

cited in Chuang, 2016). Moreover, Shinagawa (2012) also argued that MA can be useful in developing the learners' writing of Chinese character and improve their writing order. However, the difference in passing rate for both the treatment and control group in this study shows only a small improvement of 4.2%. The small difference in the passing rate suggests that the traditional learning strategies are equally important in the learning of Chinese characters stroke order among some non-Chinese students.



**Figure 4 Comparison of performance for both control group and treatment group in their pre and post-tests**

## CONCLUSION

Overall, the results of the study reveal positive impacts in the improvement of the participants' writing order either using traditional method or mobile apps. However, the improvement rate of participants who used traditional method is 25%, which is slightly higher than those who used mobile apps, 20.8%. Though the differences of improvement rate between these two methods is not huge, it is only 4.2 % but it is significant enough to tell which method might provide a better outcome. In comparison, traditional method is laborious and less effective (ZhaoGuo & JiangXin (2002) and a repetitive process for an educator whenever a new set of words is introduced to the students. Practically, since the set of vocabulary is fixed for each learning level, and mobile apps has shown to provide more motivation and improvement (Chang and Hsu (2011), Kim and Kwon (2012), Rahimi and Miri (2014), Soleimani and Mustaffa (2014) & Shinagawa (2012) ). Therefore, more mobile apps that suit the learning level of the learners need to be produced. When students use mobile apps for self-learning time, more time in the classrooms can be spent on other teaching components, such as to improve learners' comprehension, accuracy and mastery of the target language. Future studies can also seek to explore personal preferences of learning methods for writing orders as a way forward to cater for the individual needs of each learner.

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