Classroom research on Mandarin Foreign Language Learning Via Smartphone Applications

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Abstract. Mandarin is the most sought-after language due to its rapid economic development. Simultaneously, Mandarin is also becoming arguably the most difficult language in the world especially for those who are not used to the tonal language. Today, the speedy development of the internet and advanced technology has transformed Mandarin educators to accommodate innovation in pedagogy occasioned by the worldwide demand for the acquisition of Mandarin as a foreign language by non-native speakers. Thus, this action research is to investigate to what extent smartphone applications, the latest mobile technology could impact teacher’s pedagogical practice and students’ oral performances. One class of Mandarin non-native learners participated in the study. The triangulation method was used in collecting data. The data from students’ diaries, teacher’s self-reflective journals, focus group interviews and oral assessment were analysed through content and thematic analysis to gauge the impact of the technology integration. The results revealed that, over a four-week intervention period, the students viewed their Mandarin pronunciation and confidence level of oral had improved. But they contradicted the result of oral assessment. In short, Mobile-Assisted Language Learning is a potential approach to address the difficulty of Mandarin. However, to make it a success, the existence factors which facilitated and hindered students’ performance during the technology integration instruction were the most crucial.

Keyword: Mandarin foreign language, non-native learner, smartphone applications, Classroom research, oral performance

1. Introduction
Mandarin is one of the popular languages to be learned even it is conceivably a difficult language to be mastered. There are two central current beliefs regarding Chinese teaching methodology to commence Chinese instruction, which are the Chinese character introduction approach and the delayed-character introduction approach. Pinyin or the delayed character is the Romanized transliteration of the Mandarin Chinese phonetic and spoken language. Almost all the letters in the Pinyin alphabet have similar sounds to their counterparts in the alphabet. These similarities with other non-tonal languages provide learners with an assumption that learning Mandarin using Pinyin would be easier when compared to studying only
characters as a beginner. However, new students of Mandarin Chinese often find tones in Pinyin are confusing and difficult to learn, leading to frustration, disappointment, and neglect [1]. Thus, most of the Mandarin researchers tried to address students learning with the aids of current advance technology.

Today, the advances in mobile technology and globalization have brought innovation and have transformed the ways people acquire knowledge of the Mandarin language. The advanced mobile devices such as smartphones, tablets, and iPads mounted with a wealth of e-learning tools enable learning resources to be available anywhere, anytime and across settings. This promotes teaching and learning Mandarin becomes an innovation. New and transformational technologies such as hybrid texts, hypertext, still and moving images, colour, online applications, multidirectional referencing and instantaneous links bring endless possibilities to learning Mandarin as a second or foreign language. Furthermore, the presence of many free and inexpensive mobile applications in dedicated online stores operated by companies such as Nokia, Apple, Google, BlackBerry, and others [2] for education is another factor to catalyse this transformation. Simultaneously, plenty of research on Mobile Assisted Language Learning has proven that technology aids language learning, such as, learning Mandarin via modern and advance mobile devices [3] and applications make learning Chinese easier [4], Pleco eases Chinese character learning [5,6], a novel hybrid Chinese input method for touch screen mobile phones which has fostered and eased the way of inputting Chinese characters on mobile phones. Hence, this study intends to explore the influences of smartphone applications in assisting non-native learners to learn the Mandarin language while referencing the following research question: To what extent can students’ oral language performance be affected in Mandarin foreign language instruction via smartphone applications.

2. Literature Review

Commonly, oral performance is related to the learners’ fluency while performing the targeted language. Fluency is normally used as a notion in foreign language teaching and as a descriptor of oral performance during the assessment. According to Skehan [7], fluency refers to a learner’s ability to produce language in real-time without unreasonable pausing or hesitation. Fluency may also be defined as the ability to get across communicative intent without too much hesitation and too many pauses to cause barriers or a breakdown in communication [8-10]. In that study, the researchers found that the syllabus design and methodology changes can achieve fluency [10]. The studies found to enhance fluency, the development of the learner’s communicative competence which includes sociocultural competence, stylistic competence, action competence, and communication strategies is needed [11]. Besides, cultivating the mentioned competencies and skills, instructors must also consider the syllabus design and methodology of language teaching [10].

In achieving communication goals, Hatch [12] stated vocabulary or lexicon is essential to make basic communication possible as when someone did not have enough grammar very little he can convey, but if without vocabulary means he has nothing to be conveyed [13]. In short, vocabulary acquisition is the basic of all languages. Many learners faced difficulties in communicating because of their inadequate vocabulary knowledge [14]. In the instruction process, the teacher and students cannot speak without using lexical items. If learning vocabulary is so important, then what strategies do foreign language teacher and learners use when the learners acquiring Mandarin vocabulary words during the lessons. This needs to be further explored. However, few studies have investigated the teaching and learning of Chinese as a Second Language or as Foreign Language, especially in the area of vocabulary acquisition. Research on Mandarin vocabulary acquisition has received little research attention. Most of the studies of vocabulary learning and teaching focus on English as a Second Language.

Furthermore, in the communicative teaching approach, plenty of studies showed that the universal Communicative Learning Teaching (CLT) approach was found not a one-size-fits-all method and it was the interaction with various contextual factors [15]. For example, In French, Diallo [16] found that CLT
faced with contextual challenges such as unequal access to and unavailability of authentic communicative teaching materials across all schools, shortage of English language teachers well-trained in communicative methods and cultural resistance due to localized socio-cultural sensitivities. In China, the most critical potential constraint to produce communicative skill is Chinese culture learning during early implementation of CLT [17]. The conflict areas are philosophical assumptions about teaching and learning including the views of the roles and responsibilities of the teachers and students, learning strategies, and qualities valued by teachers and students. To integrate technology in instruction, it is productive to take an ‘ideological’ rather than an ‘autonomous’ attitude in applying pedagogical innovations in a different sociocultural milieu [17]. Both researchers, Diallo [16] and Hu [17] indicated that the role of the instructor ensured the effectiveness of CLT. The literature reviews above found that the reality was the application of theory into the instructor’s practice was dependent on the existing factors which will not be the same for all the context. The researchers suggested that teachers need to adopt a more refined Hi-Tech technique in their teaching to promote students learning.

Nowadays, teaching and learning in the classroom are slowly moving into online teaching influences and enables new contexts for the instructional process. The quick development of the internet and technology has changed the way of teaching and learning. At the same time, Mobile-Assisted Language Learning, a two-way process that comprises the aid of handheld technology and any other similar portable devices are emerging and able to reduce the inadequacy of learning location with the mobility of general portable devices. All the special features of mobile features including portability, social connectivity, context-sensitivity, and individuality [18] have made learning movable, real-time, collaborative, and seamless [19]. In short, the technology advance instructions promoted immediate feedback increases learner self-learning and provides authentic communicative situations and it gradually replaced by virtual environments that assist the acquisition of oral competence. However, the ‘how’ teachers can make use of advanced technology, is what makes technology effective and need to be well explored. Consequently, from the above explanation, it is the right time to conduct classroom research of pedagogical aspects with the intention to integrate the usage of smartphone applications in Mandarin foreign language instruction.

3. Research Methodology

Individual action research [20] of the classroom intervention is suitable as it was known as an effective method in the professional development of teachers. One class of 14 students were chosen as participants. The justification for the small number of students as a small intense enables the researchers to gain perspectives on how the students in class thought [21]. Besides, two main reasons that the participants were chosen as this method of purposive sampling were used as the participants were of convenience samples and they were accessible to the instructor at the same time as the researcher [22]. The most important aspects of action research are interpretation [23] and practice, participation/collaboration, reflection, interpretation and so on.

While triangulation was chosen to ensure the trustworthiness of this qualitative research. Therefore, a few instruments which suit the researcher’s context of the study including Self-Reflective Journals, Students’ Diaries, Focus Group Interviews and students’ oral assessments (before and after intervention) were used for the data collection. Regarding data analysis, the researcher used both content and thematic analyses via ATLAS.ti8 to answer the research questions.

For the intervention, the researcher cum instructor selected Dictionary-Based Applications and Web-Based Applications for the students to use during the lessons. The smartphone applications used were Dictionary-Based Applications such as Pleco. It is an online and offline Chinese Dictionary. Users can use it to teach and learn Mandarin (pinyin and hanzi). Bravolol is another English Chinese Dictionary. User needs to download iOS or Android version for free via their smartphones to use it. All the dictionary-based applications were used when they wanted to learn new words, Chinese characters, the pinyin
pronunciations, to construct simple sentences or dialogues for their oral outputs. While the Web-Based Applications included Padlet which is a great place for users to gather ideas, share them and modify them later. The users can add links, YouTube videos, files, and images to Padlet notes via their smartphones. Another one in Oceania. It is the Learning Management System of the University of Malaysia Terengganu. It allows the practitioner to send messages, images, videos, audios, assignments and group conversations between multiple users which are provided by the University at anytime and anywhere. The intervention was conducted for four weeks. During the intervention, students were asked to bring and used their smartphones to run the applications mentioned during the Mandarin lessons. They were asked to bring their power banks for the power supply, earphones and chargers to ensure the smoothness of the instruction.

4.0. Result

4.1 Mandarin Foreign Language Learners

All the Mandarin non-native speakers learned Mandarin level I before. They obtained different grades for their Mandarin level I. The majority (50%) of participants scored A followed by A-(21%), B+ (7%), B (8%), B-(7%) and C (7%). All the students agreed that they have difficulty with Mandarin oral performance.

4.2 Effects on Students’ Oral Performance

There were four themes found after the process of coding, categorizing and forming the qualitative data which was shown in table 1 including the themes of ‘Teacher’, ‘Students’, ‘Technology’ and ‘Language’. The main ideas from students’ diaries, focus group interviews and self-reflective journal which under the main theme of “teacher” were the teacher was too fast in delivering the lesson and there were too many tasks needed to be done. The teacher facilitated them in learning via mobile applications. The main ideas under the theme of “students” were the mobile apps helped the students with their Mandarin oral performances, increased their confidence in speaking Mandarin, they were able to complete the task given and they enjoyed learning Mandarin via smartphone applications.

However, they were still having a problem with their pinyin pronunciation. The main ideas on “technology” included there were plenty of smartphone applications that appear online can help them to learn and improve Mandarin learning. Regarding technology, they faced problems with the wifi coverage and the functionality of their smartphones as the students owned different brands of smartphones including Oppo, iPhone, Samsung and Huawei, and others. Lastly, the students learned all the syllabus planned during the four weeks.

Table 1. The main idea/ themes of the intervention

| Students’ Diaries | Focus Group Interview | Self-Reflective Journal |
|-------------------|-----------------------|------------------------|
| -The teacher was too fast, too many tasks | -This approach helped students in their orals and Mandarin learning; teacher as a facilitator | I was too fast in delivering the lessons. |

Main ideas under the theme of “Teacher”:
- Teacher as a facilitator during the instructional process.
- The teacher gave too much work and too fast in delivering the instruction.

-Benefited students’ learning: Oral performances, Mandarin learning and confidence improved

-Students enjoyed and willing to do all the tasks given without any complaints.
-Students improved their Mandarin learning

-Having a problem with oral
-Students did not practice the language
In table 2, two important areas were found from students’ oral assessments 1 and 2. They were ‘problem of Hanyu Pinyin’ and ‘full sentences’. The result showed that the students still having a problem with their pronunciation however they were able to produce more full sentences which were 170 sentences compared to 90 from the first oral assessment.

| Oral Performance       | Oral Assessment (OA) 1 | Oral Assessment (OA) 2 |
|------------------------|------------------------|------------------------|
| The problem of Pinyin  | 31                     | 39                     |
| Pronunciation          |                        |                        |
| Full sentences         | 90                     | 170                    |

In the 4-week lessons, the data showed learning via smartphone applications had affected students positively in their learning. They completed all the given tasks independently, even when there were too many tasks given during a lesson. Moreover, students’ perceived that their oral performances and confidence level had improved. The students were interested in learning Mandarin, as they found that the smartphone applications helped them in their learning. They learned to use the applications, Chinese characters and the topic on ‘appointment’. Nevertheless, the internet connection, smartphones’ capability, and the teacher’s delivery speed might be the reasons that the students did not perform well. In summary, the data analysis revealed that learning Mandarin via mobile applications helped the students to overcome their fear of the difficulty of Mandarin learning. However, the internet connection, telephone’s functionality, and the teacher’s speed in delivering the lesson have impeded their learning. Hence the result of their oral performances showed they still have a problem with pinyin pronunciation.

5. Discussion and Conclusion
This finding has shown that learning Mandarin can be supportive via mobile applications. Teachers may engage a wealth of innovative opportunities that provide the students with choices, the ability to create tasks, to use games, to interact with others, to explore media, and to engage students in language learning in multiple ways.

This finding is in relation to the literature that iPad usage has improved the quality and quantity of students’ oral performance [24]. Moreover, the capabilities of the smartphone allow for the use of rich learning materials in multimodal ways [25]. In fact, learning via mobile devices brings a positive learning attitude to the students. In the theory of learning, students are learning by using the ‘connectionism’ manner; by surfing and connecting all the related and wanted materials from all the databases available.
with self-knowledge. The students then construct new experiences when dealing with either the teacher or other students that enhances their oral performances during the learning process.

In tackling the problem of tone, this may be helped by educational technology. This is similar to the findings that pronunciation training can help learners overcome the difficulty in pinyin tones [26]. Learning via technology promotes self-regulated learning that echoes these studies [27], which shows that self-evaluation has made students feel more positive about their pronunciation. With regards to oral production, the result showed the students were able to produce more sentences in their oral performance. As known, vocabulary or lexicon is often considered the basis of all languages. Hatch [12] had ever stated that when a language learner did not have vocabulary then nothing can be conveyed by them. This point was further stressed by Wilkins [13], to achieve communication goals, the lexicon was crucial to make basic communication possible. Vocabulary acquisition can serve as an indicator of their proficiency level in the target language. This shows that the ability and smoothness in producing full Mandarin sentences were enhanced. The students could give spontaneous responses while speaking with the native speakers. Moreover, the students perceived that they were more confident in speaking Mandarin as they could pronounce Chinese tones better; as compared to the first oral assessment.

To sum up, this classroom research has achieved the aim of action research. First, the teacher has improved personal pedagogical practice besides enhancing students’ oral productions. However, students’ pinyin pronunciation remains an issue to tackle in the future. That is typical challenging as learning pinyin, especially the tones are known as a confusing and difficult task for a non-tonal speaker. This is because the brain of a non-tonal language is just not capable of processing tone properly, and some areas of the brain must be trained to use tones in the correct way [28]. Thus, in future study teachers may focus more on oral practice with the integration of mobile technology to make the students get their brains trained in linking tone to the meaning of words rather than just the number of words learned.

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