Affordance-based Mobile Learning in a Flipped Classroom to Enhance CFL Learners’ Oral Proficiency: A Comparative Study

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Abstract. A study is reported on the effectiveness of enhancing Chinese as a foreign language (CFL) learners’ oral proficiency via mobile-assisted flipped instruction. 64 overseas sophomores at a four-year comprehensive university in Southwest China voluntarily participated in the study. The researcher conducted a teaching experiment, and the data collected from pretest and posttest was analyzed with independent-sample T-test. Class observations and interviews were also designed and implemented to figure out students’ performance in class and attitude toward the mobile-assisted flipped instruction. The results indicated that the participants’ oral proficiency was significantly enhanced as the result of the employment of mobile-assisted flipped instruction. Participants in experiment group appeared to behave more actively in class due to better affordances of more communication opportunities, sufficient collaborations, and flexible self-direction.

1. Introduction

For learning a language, the development of communicative competence is a significant goal. Hence, exposure to communicative practice is generally recognized as an essential element of successful foreign language learning and teaching. Oral proficiency in a foreign language is the prerequisite for communication of ideas and intelligent conversation [1]. So in the TCFL (Teaching Chinese as a Foreign Language) classroom, various pedagogical approaches should highlight the cultivation of learners’ oral proficiency. However, inadequate interaction and teacher domination in traditional class still suppress the development of student communicative competence.

Ecological linguistics see language as relations between people and the world, and language learning as a way to relate effectively the people to the world. And the key concept of ecological linguistics is “affordance”, which was originally coined by American psychologist J.J. Gibson (1979) [2], means a relationship between organism and the environment that makes an opportunity for or inhibition of action. According to Van Lier (1996) [3] in the ecological view of learning with an emphasis on affordances, language and other sources of meaning are not ready-made. Curriculum must be driven by the learning process rather than by taught and consumed in the classroom.

Flipped learning is a relatively new instructional method which emphasizes effective use of class time by changing the traditional tasks of teachers and students inside and outside the classroom [4]. It is considered that the flipped classroom, one of the blended learning models used widely, can enable teachers and students to structure the learning environment [5]. The conventional instruction is always teacher-centered, by which the teacher gives lectures during the lesson and assigns students homework or after-class exercises. While in the flipped classroom, the teacher delivers the content outside the classroom with multiple learning scaffoldings including texts, videos, audios, pictures, etc., and uses class time for active learning by having students collaborate and interact with each other [6].

As a result of the flipped classroom, students find more opportunities to get engaged with more activities in class and to have discussions about the concepts involved, which have been recognized to be of great importance in language learning. In recent years many researchers brought out their theoretical reflections and teaching practice on flipped language teaching. Hsiu-Ting Hung (2015) [7] describes a structured attempt to integrate flip teaching into language classrooms using a WebQuest active learning strategy. Wen-Chi Vivian Wu et al. (2016) [8] examined the impact of an online learning community in a flipped classroom on EFL learners’ oral proficiency and student
perceptions. Jun Scott Chen Hsieh et al. (2017) [9] used flipped learning and Wen's Output-driven/Input-enabled model to design a holistic oral training course that included extensive online written and verbal communication for the learning of a wide range of English idioms. But to our knowledge, few literatures could be found on the flipped instruction in the field of CFL. That’s the main reason why the current study was originated.

A big challenge for researchers to explore the practice of flipped language instruction may due to the lack of mobile technology and platform support. While in China, an APP called WeChat makes it easier and accessible. WeChat is a Chinese social media application developed by Tencent. As a cross-platform (Android, IOS, PC) that provides text, voice, or even video messaging communication service, it can be utilized to construct learning community in which necessary collaboration and communicative opportunities are provided to achieve ubiquitous learning. Consequently, the pedagogical affordances will be maximized to enhance learners’ oral proficiency in a mobile-assisted flipped learning environment.

Accordingly, the researcher employed a mixed-method study to figure out whether an affordance-based mobile learning in a flipped classroom with a WeChat Official account may enhance the CFL learners’ oral proficiency or not. The following research questions guided this study:

• Were there any differences in the participants’ oral proficiency between the two instructional methods? (Mobile-assisted flipped instruction versus conventional teacher-led instruction)?
• What were the participants’ attitudes toward the mobile-assisted flipped instruction?

2. Method

In an attempt to figure out the possible effect of mobile-assisted flipped classroom in the field of CFL, the author designed and conducted a teaching experiment for 16 weeks. Then an independent t-test is made to see whether there is any significant difference between the two groups of participants. Class observations and interviews were also conducted by the researcher to evaluate students’ authentic performance in the class and their attitudes toward the flipped instruction.

2.1 Participants

When the study was initiated, there were 89 non-Chinese sophomores taking Chinese speaking courses (intermediate level) of 2 credits at a university in Southwest China. After an email describing the research details, 64 of them voluntarily participated in the study. They came from 15 countries, and had learned Chinese for at least one year. Among them, 39 were females and 25 were males. Then all the 64 students were divided into two groups equally according to a placement test to make sure that both groups have the same amount of students (32 students for each) and they shared an approximate proportion of high, intermediate, and low achievers. One group was exposed to affordance-based mobile Learning in a Flipped Classroom (Experiment Group), and the other received a traditional teacher-centered instruction (Control Group).

2.2 Instruments

2.2.1 Pretest and posttest

The pretest and posttest papers of HSKK (intermediate level) were adopted to evaluate learners’ oral proficiency. HSKK is an authoritative Chinese speaking test, which is designed and organized by the Confucius Institute, which aims to examine CFL learners’ speaking and communication competence. Its intermediate level is for those who have learned Chinese two or three academic periods per week for one to two years and grasped about 900 Chinese words, which is in accordance with our participants’ average level. The HSKK paper (intermediate level) is consists of three parts with a maximum score of 100 points. Examinees are supposed to repeat 10 short sentences, then describe 2 pictures, and at last answer 2 questions within 21 minutes. Both pretest and posttest were completed in the same multimedia language lab, and students’ speaking sounds were recorded by the test system.
2.2.2 Class observation

Class observation was used as a research instrument in the study to get authentic performance of learners. The reason is that teaching is a type of complicated activity, and students’ oral production is tacit and environmental, which can be revealed and reflected in real classes. During the experiment, audio recordings were made regularly in both experiment group and control group. They were conducted without the knowing of participants, so that they could perform naturally. The recordings were used to calculate the time distributed to the teacher’s instruction and students’ engagement in learning activities.

2.2.3 Interview

At the end of the experiment, an interview was conducted for 4 students randomly selected from the experiment group by the instructor as researcher, in which eleven interview questions were designed to investigate learners’ attitude towards the flipped approach, and their suggestions for the implementation. All the interviews were also recorded and transcribed into texts for data analysis. According to the research design, each interview would last about 20 minutes.

2.3 Instructional design

Popular CFL textbook *Boya Chinese (Elementary II, 2nd ed.)* was used for both the control group and the experiment group in the teaching experiment. Based on the concept of situated learning and functional language learning theory, this textbook is designed to meet the basic requirements for daily social communication. It contains 5 units, and each unit consists of 5 short passages (dialogues) including words, phrases as well as key language points.

The author of the paper served as instructor of both groups. The control group had three periods of classroom teaching every week. The teacher applied a traditional approach, which focused on explaining the words and language points, and paraphrasing difficult sentences so that the learners could understand them well.

The experiment group had two periods of classroom teaching every week, in which they were exposed to mobile-assisted flipped instruction. At the beginning, the instructor applied for an official account of WeChat and all the participants of experiment group were asked to follow the account so that they could receive learning materials, class tasks, and latest notifications from it. The learning materials for experiment group included background information, cultural notes, audios and videos relating to the lecture. And students were expected to prepare the coming lecture quite well before the class and give class presentations as learning production. In such occasion the teacher was not the center of the class any more, but the organizer and commentator instead. The performance of learners’ class presentation would be recorded and given a score.

A WeChat group was also created simultaneously as an online learning community, in which members would share their learning goal, exchange ideas, and collaborate with others. It was the online community that made them involved in learning activities anytime and anywhere. The instructor could also use the community to get feedback or reply to learners’ problems.

3. Data Analysis and results

As mentioned at the beginning, the aim of this study is to test whether mobile-assisted flipped classroom can enhance CFL learners’ oral proficiency. Hence the researcher conducted a teaching experiment which lasted for 16 weeks. Before and after the experiment, both the control group and experiment group were arranged to have a HSKK Test (pretest and posttest). Two associate professors with the experience of teaching CFL for over 5 years served as markers. Guided by the scoring criteria of HSKK, they examined the test recordings and assigned a score for every student. An average of the two scores was assigned as the final score. Then all the scores were put into a computer and analyzed with the SPSS 16.0.

3.1 Result of the pretest

In order to compare means of the pretest scores, a one--sample K-S test was conducted first to see whether the data distribution of the two groups was normal or not. The result is, Sig. of control group is 0.899 (p>0.05), and Sig. of experiment group is 0.960 (p>0.05). The data distribution in
both groups is normal. The descriptive statistics of pretest showed that the mean of control group is 69.1250, and the mean of experiment group is 70.5312.

Independent-sample t-test revealed that the Sig. of Levene’s Test for equality of Variances is 0.828, then the sig. (2-tailed) of t-test for equality of means is 0.534 (p>0.05), which indicated that there was no difference between the two groups at a significant level before the experiment (See table 1).

Table 1. Independent-sample T-test of the pretest.

<table>
<thead>
<tr>
<th>Levene’s Test for equality of Variances</th>
<th>T-test for equality of Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.048</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
</tr>
</tbody>
</table>

3.2 Result of the posttest

At the end of the teaching experiment, a posttest was conducted in both experiment group and control group. The results of one--sample K-S test showed that the data distribution in both groups is still normal (Sig. of control group is 0.889, and Sig. of experiment group is 0.942). Besides, we can see from the descriptive statistics that the mean of posttest in experiment group is 74.7500, much higher than the control group (68.0625).

Table 2. Independent-sample T-test of the posttest.

<table>
<thead>
<tr>
<th>Levene’s Test for equality of Variances</th>
<th>T-test for equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.286</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
</tr>
</tbody>
</table>

According to the Independent-sample T-Test (See Table 2), the Sig. (2-tailed) is .003 (p<0.05), which proves that there is significant difference on students’ oral proficiency after the experiment, and the null hypothesis was rejected. The result indicates that the mobile-assisted flipped classroom contributed to a better language learning affordance and enhanced students’ oral proficiency than the conventional instruction. This may due to the expected learning environment of providing ample opportunities for conversational applications in authentic, interactive, engaging, and collaborative learning contexts.

3.3 Results and analysis on classroom observations

In order to get more direct and thorough understanding of the differences between the two groups in time allocation and students’ oral output in the class, the researcher made recordings for five class periods (one period lasts 40 minutes, 200 minutes in total) in each group. Table 3 obviously shows the time devoted to students’ classroom activities in the experiment group in much more than in the control group. This fully exposes the essence of mobile-assisted flipped classroom, which offers students more opportunities and autonomy in language communication.
Table 3. Time distribution in the classrooms of the two groups.

<table>
<thead>
<tr>
<th></th>
<th>Total (minutes)</th>
<th>Mean (minutes)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>123</td>
<td>24.6</td>
<td>61.5%</td>
</tr>
<tr>
<td>students</td>
<td>77</td>
<td>15.4</td>
<td>38.5%</td>
</tr>
<tr>
<td>Experiment Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>68</td>
<td>13.6</td>
<td>34.0%</td>
</tr>
<tr>
<td>students</td>
<td>132</td>
<td>26.4</td>
<td>66.0%</td>
</tr>
</tbody>
</table>

The data analysis of classroom observation recordings also revealed that more students in experiment group participated in class actively. In the control group there were 25 students who had ever participated in the class activities, among them only 5 were active participants, and 7 never speak in the class. According to their placement test, the 5 active participants were all advanced achievers. While in the experiment group, only 1 learner didn’t speak, and the number of active participants reached to 17, or 53.1% of the total 32 students. (See Table 4)

Table 4. Numbers of students participating in classroom activities.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Active</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numbers</td>
<td>32</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>15.6%</td>
<td>21.9%</td>
</tr>
<tr>
<td>Experiment Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numbers</td>
<td>32</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>53.1%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

From the recordings of class observation, the research may claim that mobile-assisted flipped classroom can provide learners enough affordances to improve their oral proficiency. And the oral tasks and WeChat Group (online learning community) made their learning process more autonomous and highly motivated. Instructor of the flipped classroom served as an organizer rather than the core and authority. As for the control group (conventional approach), only high achievers were active learners and willing to express their ideas. When the research as instructor gave lectures to the both groups, he had an intuitive feeling for such difference. In the flipped classroom learners’ passionate presentations and energetic discussions tended to make the learning delightful and productive, this was supposed the ideal state of language acquisition.

3.4 Results and analysis of the interviews

Aiming at investigating students’ attitude toward the mobile-assisted flipped classroom, interviews were conducted only for the experiment group when the experiment was completed. The comments from students were recorded with a recording device, and then transcribed into texts for analyzing. From their statements, the researcher reassured that mobile-assisted flipped classroom could afford them more opportunities of collaboration and autonomy with less pressure. Student A said as follows:

I feel pretty good about the mobile-assisted flipped classroom. Now I can share my opinions either with my partner(s) face-to-face or in the WeChat group. I think everyone is engaged in such collaborations.

Students felt that they were not alone because they shared goals the deserved a reasonable score due to their contribution for the tasks. In that way when a task was chosen and a small team was constructed, the leader and high achievers would help others understand the learning materials and explore the assignments. Student B stated like this:

Because of group competition, we worked hard together trying to learn the texts well and prepare the class presentation. I could say that I spent much more time than before in learning Chinese. And discussing with my partners through the WeChat also made me motivated to learn, because, you know, it’s so convenient and flexible.

Compared with the conventional lecture-based instruction which started normally with unidirectional and didactic lectures, most students thought that the flipped instruction more effectively and efficiently enhanced their oral performance. Student C noted like this:

Such learning released my tension. After learning the information covered in the instruction, I felt more confident when communicating with my peers in Chinese. I can watch the demonstrating
videos and imitate the dialogues as much as possible. My speaking recordings could also be replayed many times if I want.

Though most interviewees agreed that the mobile-assisted flipped classroom could enhance their oral proficiency, some of them also mentioned that the competence of writing and reading appears poorly improved during the experiment. Surely it has little relation to the current study, but should be examined in the future research.

4. Conclusion

The results of the current study revealed that the participants’ oral proficiency was significantly enhanced as the result of the employment of mobile-assisted flipped instruction. The mobile-assisted learning with WeChat makes learners’ CFL acquisition more constructive, collaborative, contextual, and flexible. And flipped instruction makes their learning self-directed and motivated. All these provide CFL learners with optimization of affordance, which have been supported by both quantitative and qualitative data analyzing results.

Meanwhile, it should be noted that flaws of the study should never be ignored, i.e., the insufficient participants, and the reliability of two markers. The researcher served as instructor himself, which remains a potential negative factor that may also affect the results of the experiment. Future studies in the field of TCFL should try to assure that a larger sample would enable more incisive statistical analyses, and markers in an experiment should be trained with definite and clear directions when giving marks.

5. References