Multimedia Application for Improving Chinese Language Skills for International Students

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Abstract
In the last decade, research on Chinese as a second language teaching and learning has yielded significant advancement through state-of-the-art technology. This paper addresses the major difficulties that students face in recognizing Chinese characters. To solve the problems, the study proposes the online multimedia application for teaching Chinese characters. The needs analysis was conducted beforehand with the intention of provoking students' perceptions of both traditional and multimedia methods of teaching and learning Chinese characters. The purposes of this research were 1) to identify the efficacy of the proposed multimedia learning platform for learning Chinese characters 2) to compare students' learning achievement through pre-test and post-test via the proposed system and, 3）to compare learning performance between traditional teaching (controlled group) and multimedia platform teaching (experimental group). The sample of this research included 60 students who are studying Chinese Language as a Second Language in an international school in Beijing from 12-16 years old. The data were analyzed using mean, correlation analysis and ANOVA. The findings showed that 1) The students' achievement after utilizing the system was significantly higher than controlled group; 2) The student's level of satisfaction toward the system was at the highest level. It was found that the proposed online system was beneficial to the improvement of learners' language proficiency and learning motivation and 3) The application of multimedia learning reduced learners' language learning anxiety, and there was a significant difference between the experimental group and the control group.

Keywords: Multimedia Application, Educational Technology Innovation, CALL (Computer Assisted Language Leaning), Second Language Learning

1. Introduction

Multimedia learning has been a widely researched area, often following cognitive theories of learning with verbal and visual modalities (Chun & Plass, 1997). Many studies (Yoshii, 2006) showed that input in multiple modalities improved vocabulary acquisition while reading. In recent 20 years , with eht development of internet and mobile technology, mobile assisted language learning (MALL) becomes a hot spot not only in the teaching practice but in the field of research. (Pachler 2010). Mobile Assisted Language Learning (MALL) is a branch of the research field of mobile learning (mLearning), which attracts more and more scholars' attention. Mobile technology is rapidly attracting new users, providing more and more capacity, and allowing more complex use. This will affect cultural practice and provide a new environment for learning (Pachler 2010).

2. Research Objectives

2.1 To find the efficiency of the Multimedia network learning Application for Chinese language learning as a second language for teenagers.

2.2 To compare the language learners' achievement on the Multimedia network learning Application.

2.3. To assess the young learners' satisfaction with the Multimedia network learning Application.

3. Research Hypothesis

There are three research hypotheses as to the following:

3.1 Students studying with the Multimedia network learning Application for language Proficiency including reading, listening, writing and speaking ability have higher or lower achievement than those study with traditional education with statistical significance 0.05.

3.2 Satisfaction level of young learners of Chinese language as a second language who study with the Multimedia network learning Application are increasing with their language proficiency level.

3.3 There are significant differences in the scores of Foreign Language Classroom Anxiety Scale (FLCAS) between students using multimedia application teaching and students using traditional teaching methods after three months different treatment.

4. Research of Methodology

4.1 The population: The sample of this research included 60 students, and half using the Multimedia network learning Application and the control group studying with traditional method from one international school in Beijing studying in the first semester of 2021, aged from 12 to 18.These 60 samples were originally in the same language learning class. At the beginning of the experiment, the researchers randomly divided them into two groups. Therefore, we can assume that at the beginning of the experiment, there were no significant differences in their language proficiency, language learning satisfaction, language learning anxiety and other factors.

4.2 The research instruments consisted of

(1)The Multimedia network learning Application (TCSL);

(2)A post-test as an achievement assessment for both groups;

(3)Satisfaction questionnaires to assess the student's level of satisfaction toward the Multimedia network learning Application. There are ten questions in the satisfaction questionnaire, mainly including teaching content, teaching methods, teachers, learning environment, learning effects, etc. The questionnaire uses five scales, and the students answer very satisfied, relatively satisfied, average, dissatisfied, very dissatisfied on 5-point Likert scale.

(4)Foreign Language Classroom Anxiety Scale(FLCAS), by Horwitz, which is a well-established instrument that has been widely applied in different countries with learners of various L2s and L1s It is comprised of 33 items, responded to on a 5-point Likert scale, ranging from “1 (Strongly agree)” to “5 (Strongly disagree).” It is generally recognized as having a one-factor structure (Horwitz 1991) concerning performance evaluation within both academic and social contexts.

(5)In order to test the difference in language proficiency between the experimental group and the control group, we conducted a language proficiency test for the two groups of students at the end of the experiment, using The Chinese Proficiency Test （HSK） as the measuring tool, which a standardized test with good reliability and validity.The Chinese Proficiency Test is a standardized test issued by the Ministry of Education of China and the State Language Commission. The Chinese language proficiency is divided into six levels, from beginners to very proficient in the language. Each level is a separate test. According to the students' language proficiency, the researchers selected the HSK-4 test as a measuring tool. The test consists of three parts: listening, reading and writing, with 100 points for each part and 300 points for the total. The total length of the test is 100 minutes.

5. Conclusion

After three months of experiments, we conducted language proficiency tests, learning satisfaction tests and anxiety tests on the experimental group and the control group respectively, and found that there were significant differences between the two groups.

5.1 There is significant difference in language proficiency between the two groups.

Through the descriptive analysis of the HSK scores of the experimental group and the control group, we can find that there are differences between the two groups. In order to verify whether the differences are statistically significant, we also made a correlation analysis between the group and the HSK scores.

Table 1 Correlation Analysis of HSK scores between two groups

Correlations				
			group	hsk
Spearman Rho	Group	Coefficient	1.000	.512**
		Sig.（Two tail）	.	.000
		N	60	60
	Satisfaction	Coefficient	.512**	1.000
		Sig.（Two tail）	.000	.
		N	60	60
**.p (p < .01)				

The correlation analysis shows that there is a significant difference between the experimental group and the control group in language proficiency, with a significant level of 0.01. According to the judgment of the researchers, after a semester of differentiated treatment, the language proficiency of the experimental group and the control group is significantly different. Because teachers and other relevant control variables have been well handled, the most likely reason for this difference in language proficiency is different teaching methods. This conclusion is the same as the previous statistics of learner satisfaction. According to this analysis, because the experimental group used the APP for language learning, their language proficiency has changed, which is obviously better than the control group. That is to say, APP for language learning really has a promoting effect on learners' language learning.

5.2 There is significant difference in language learning anxiety between the two groups.
Correlation analysis showed that there was a significant difference between the two groups, the significant level was 0.01. The anxiety of the experimental group was significantly lower than that of the control group. We speculate that the difference in anxiety is due to the use of mobile apps by students in the experimental group. Using the mobile app to learn makes students feel relaxed, without pressure, and without having to face teachers or be asked questions directly. At the same time, the design of the mobile app is more interesting and can attract students to learn.

Table 2 Correlation analysis of Anxiety of the control group

Correlations				
			anxiety	group
Spearman Rho	anxiety	correlation coefficient	1.000	-.731**
		Sig.（two tail）	.	.000
		N	60	60
	group	correlation coefficient	-.731**	1.000
		Sig.（two tail）	.000	.
		N	60	60
**. At 0.01 level (double tail), the correlation is significant.				

5.3 There is significant difference in language learning satisfaction between the two groups.
As mentioned earlier, the control group and the experimental group were randomly assigned, so we can think that there was no significant difference between the two groups before the experiment began. After different treatment, we investigated the satisfaction of the two groups. The data of satisfaction of the two groups are as follows.

Table 3 Satisfaction Descriptive Analysis of two groups

Descriptive Analysis					
	N	Minimum	Maximum	Mean	SD
Satisfaction	60	20.00	50.00	38.7667	8.48801
N	60				

Table 4 Satisfaction Descriptive Analysis of the first group

Descriptive Analysis					
	N	Minimum	Maximum	Mean	SD
Satis1	30	30.00	50.00	44.2333	5.32193
N	30				

Table 5 Satisfaction Descriptive Analysis of the control group

Descriptive Analysis					
	N	Minimum	Maximum	Mean	SD
satisf2	30	20.00	49.00	33.3000	7.51160
N	30				

Through descriptive analysis, we can see that there are differences between the two groups. In order to verify whether the difference is significant, we have made a correlation analysis. Correlation analysis showed that there was a significant difference in satisfaction between the experimental group and the control group ($p<0.01$).

Table 6 Correlation analysis of Satisfaction and the groups

Correlations				
			Group	Satisfaction
Spearman Rho	Group	Coefficient	1.000	-.640**
		Sig. (Two tail)	.	.000
		N	60	60
	Satisfaction	Coefficient	-.640**	1.000
		Sig. (Two tail)	.000	.
		N	60	60
**. p < .01				

The statistical results show that the student satisfaction of the experimental group is significantly higher than that of the control group. As teachers and other factors have been controlled as control variables, the most likely reason to affect student satisfaction is different teaching methods, that is, the use of our multimedia APP. Although the correlation analysis only shows that there are students in the xia experimental group who use multimedia tools to learn between groups, they feel interesting and their satisfaction with learning is improved, while students in the control group use traditional methods to learn, so their satisfaction with learning is relatively low.

5.4 Summary

The researcher in this paper conducted satisfaction test, language proficiency test and anxiety test for the experimental group and the control group, and found that there were significant differences between the two groups in the above three tests. The students in the experimental group were more satisfied with learning, the language proficiency level was significantly higher than the control group, and the learning anxiety was significantly lower than the control group. We try to make the following conclusions:

1) The APP used in this experiment is conducive to improving students' satisfaction with Chinese language learning.
2) Using this APP is conducive to improving students' language proficiency.
3) The use of this app has a significant effect on reducing learning anxiety.

5.5 Discussion

Since this Chinese language learning software was originally designed with reference to Gagne's cumulative learning theory, each lesson includes the above eight links. It shows the grammar and vocabulary to be learned in this lesson through short stories, which belongs to the motivation and understanding stage of Gagne's theory; While the teacher's explanation video belongs to the acquisition and maintenance stage. A large number of rich interactive exercises provide opportunities for students to recall, profile and work. APP automatically judges the operation and brings timely feedback. The above links have been arranged since the initial design of the app, which avoids the differences caused by the different teaching styles of teachers in the traditional classroom.

The following four conclusions can be drawn from this study. Multimedia APP can help teenagers learn a second language in many ways. First, it can reduce students' learning anxiety, second, it can improve students' academic performance, third, it can improve students' satisfaction with learning, and fourth, it can make students more happy with learning Chinese language, which we can describe as the following chart. Figure 1 shows benefits of using APP.

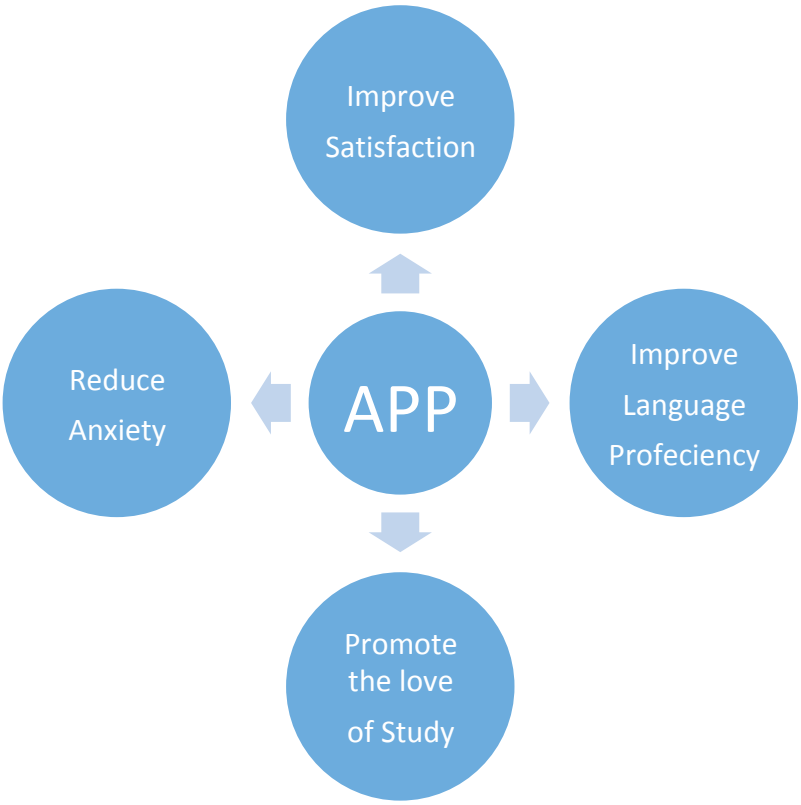

Figure 1 the relationship between Application usage and benefits

The relationship between these four benefits is still unclear, but we can roughly describe it as a process. Learning language using APP first makes academics feel fresh and interesting, which naturally reduces the anxiety that often occurs in learning. According to Krashen's theory, as long as learners' anxiety is reduced, learners' language performance will increase significantly, Therefore, students' language proficiency has been greatly improved. The reduction of anxiety and the rapid growth of language proficiency promote students to be satisfied with the language learning process.

References

Abdous, M., Cammarena, M., & Facer, B. (2009). MALL technology: Use of academic podcasting in the foreign language classroom. *ReCALL, 21 (1)*, 76-95.

Chun&Plass (1997). *Language, Learning and Technology 1(1)*:60-81.

Horwitz. (1991). *Language Anxiety.* NJ: Prentice Hall, 87-90.

Pachler (2010) *Teacher professional development practices : the case of the Haringey Transformation Teachers Programme.*Online Learning Communities and Teacher Professional.

Yoshii. (2006). L1 and L2 glosses: Their effects on incidental vocabulary learning. *Language, Learning and Technology 10(3),*32-36.