EFFICACY OF MULTIMEDIA TEACHING INSTRUCTION IN ELEMENTARY MANDARIN CLASS

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Abstract

This study sought to assess the effects of using multimedia teaching instruction versus traditional classroom instruction method on students' Elementary Mandarin achievement in a branch campus of a public university in Malaysia. The duration of this study covered one semester (December 2007 – April 2008) and quasi-experimental design (post-test only) was used. The samples consisted of two classes of Elementary Mandarin Level II in the branch campus; one class as the control group (n=31) and the other class as the experimental group (n=34). Independence Sample T-test results showed that the students who were taught using multimedia teaching instruction demonstrated significantly higher achievement than that of the traditional classroom instruction. Additional data gathered from face-to-face interviews with a few students indicated that the students showed positive attitude and liked to learn Mandarin through multimedia teaching instruction. They indicated that their learning outcomes are more beneficial, effective and enjoyable compared to the conventional teaching.

1 Introduction

The rapid development in Information and Communication Technology (ICT) and the use of computer in education have made it easier for users to access, deliver and store knowledge. Furthermore, the ability of ICT to deliver information quickly, correctly and attractively in the form of multimedia has also made learning more enjoyable.

An enjoyable learning scenario is a necessity to effective instruction. Besides being an instruction that students enjoy, effective instruction also enables students to acquire specific skills, knowledge, and attitudes (Dick & Reiser, 1989). In order to achieve effective instruction, language instructors need to create an enjoyable learning environment and one of the methods is to use multimedia teaching instruction.

Nowadays, it is common to see instructors use multimedia tools as their teaching aids in their efforts to reproduce or enhance their teaching. The use of multimedia, a woven combination of text, graphic art, sound, animation and video elements, enables both synchronous and asynchronous learning (LeeTiernan & Grudin, 2001). Information can be projected onto a computer screen and/or television monitors as well as LCD projectors

(Voughan, 2001). Fu (1996) claims that the term "multimedia" does not only include computer softwares and CDs, but also the use of videos, slides as well as overhead projector equipments. As such, any teaching via the use of various media can be considered as multimedia teaching.

The application of multimedia in today's educational system is largely due to studies that claim proper usages of computers could help improve the effectiveness and efficiency of language learning (e.g., Christmann, Badgett, & Lucking, 1977; Kulik & Kulik, 1991) as well as help students to gain knowledge more effectively (Liu, 2000). Even though these studies have pointed out the advantages of using multimedia, teaching instructions mainly remain traditional and static, and the use of computer as an alternative teaching tool may seem far-fetched as long as it is not a compulsory tool in the teaching process (Offir, 2000).

2 Background of the Study

Mandarin is considered as a third language among the non-Chinese in Malaysia. Almost all the public universities in Malaysia offer Mandarin as a third language course to its non-Chinese students. The target population in this study is Malay diploma students of Faculty of Business Administration in a branch campus of a public university that caters only to the Bumiputera (Malay and native) of Malaysia. These diploma students take up Mandarin course to fulfil their faculty's requirement that compels them to learn either Arabic or Mandarin as a third language.

The Mandarin course is a two-level programme designed specially for these diploma students who have to sign up for the third language course. The students are taught appropriate elementary level vocabulary and grammar. As such, the course emphasizes mainly on developing students' oral communication skills in situational contexts. In this course, students learn Mandarin through the Romanised Mandarin (Hanyu Pinyin) system instead of Chinese characters. For each level the students study four hours per week for a total of 14 weeks.

The Mandarin Unit under the Academy of Language Studies at the main campus of the university publishes textbooks for the use of students. As a result, majority of the Mandarin instructors tend to use the textbook as the main tool in their conventional teaching method. However, there are some instructors who realize that resorting to textbook alone is insufficient to meet the needs of the students. These instructors realize that for effective learning to take place, a teacher should use effective teaching methodology and create an environment conducive to learning, and to achieve this, they have tried to produce their own interactive multimedia supplementary instructional tools (Goh, Kuek & Kuek, 2006).

3 Problem Statement

As mentioned above, the conventional teaching method with the textbook as the main teaching tool has been the most preferred among the Mandarin lecturers in this university. Not much effort has been made to effect a fundamental change to ensure effective learning. It seems like the instructors and the students are "comfortable" with the traditional classroom instruction.

Although there are plenty of Mandarin learning CD-ROMs and multimedia kit in the market, these products are developed abroad and are sold without complying with the local needs as well as educational goals (Goh, Kuek & Kuek, 2006). In addition, students do not like to surf the internet for learning Mandarin materials as they are mostly written in Chinese characters (Goh, 2006, as cited in Tan & Hoe, 2007) which they cannot read. Besides, the content is also less suitable to the local needs. As a result, majority of the instructors are hesitant to employ Web-Based Instruction in their teaching.

4   The Purpose of this Study

This study comes in the wake of a survey done by the former coordinator of the Mandarin Language Unit, Haji Ali bin Saad (1985), which had indicated that a substantial number of the learners at the institution were dissatisfied with the teaching methodology employed by the instructors. Little effort was made to improve the situation. After the year 2000, with the recruitment of a batch of permanent staff (Tan & Hoe, 2007), efforts to incorporate some elements of multimedia teaching instruction in the language classes were made.

To keep abreast with the rapid development of ICT, it is felt that the application of multimedia teaching instruction should be initiated in the Elementary Mandarin classrooms. Although application of multimedia in teaching is not new in the educational field, it is yet to be implemented successfully in Elementary Mandarin classes for non-native learners in Malaysia. As such, the purpose of this study is to gauge the efficacy of multimedia teaching instruction in Elementary Mandarin class. Efforts were made to look into the students' achievement, and to investigate the perception and attitude of the students towards multimedia teaching instruction in the teaching of Mandarin as a third language in the university.

5   Research Questions

This study hopes to shed some light on the following questions:

1. Is the achievement of students learning through multimedia teaching instruction better than the achievement of students learning through the traditional instruction?

2. What is the attitude and perception of students regarding multimedia teaching instruction as a major instruction in the Mandarin class?

6   Literature Review

One of the major concerns of educators from the past until now is how to enhance and sustain the good achievement of their students. With this concern in mind, research is constantly carried out to provide new proven methods that educators can use. Parallel with the advancement of technology, many kinds of tools have been developed. Among them are electronic glossaries, web-based exercises, course-wares and also videos. Therefore, nowadays, it is common to see instructors use multimedia tools as their teaching aids.

Studies conducted over the years have indicated that the use multimedia can address the different learning styles of students (Howson & Davis, 1992). As a result, students

become actively involved in their own learning and have better comprehension rather than merely memorizing facts (Kneedler, 1993; Reeves, 1992). In addition, when teachers use interactive multimedia, students become highly motivated. This results in better class attendance and more completed assignments (O'connor, 1993).

In exploiting the advantages of multimedia, instructors should as far as possible ensure that the materials used are those of familiar topics (Schmidt-Rinehart, 1994). Multimedia clips should also be used because they allow students to 'mimic the multi-layered complexity of real-life interaction', and are able to highlight prosodies of non-verbal communication as well as the stress and intonation patterns of the target language (Goodwin, 2008).

In view of all the postulations given above, this study employs the use of multimedia which include video clips and PowerPoint presentations to teach listening, speaking, reading, vocabulary, and sentence structures to a group of Malay students learning Mandarin as their third language.

7   The Study

7.1 Study Design

This is a quasi-experimental (post-test only) study that uses mix approaches research design. The researcher used quantitative approach to compare the final semester examination scores of two groups namely the students who learnt through multimedia teaching instruction and the students who learnt through traditional classroom instruction. Besides that, one-to-one interviews and classroom observations to investigate the attitude and perception of the participants towards multimedia teaching instruction were also carried out.

7.2 Variables and Instrument

The independent variable of this study is the instructional approach (multimedia teaching instruction vs. traditional teaching instruction), and the dependent variables are students' achievement as measured by their final semester examination scores, their attitude as well as their perception. The Final Semester Examination of the Elementary Mandarin Level II (BMD 151) was used as the measuring instrument. The test was designed by the Mandarin Unit of the main campus to measure the performance of students who took this Mandarin course at the main campus and all the branch campuses.

7.3 Participants

Two classes of Elementary Mandarin Level II (BMD 151) were chosen to be the participants – one class of 31 students as the control group and the other class of 34 students as the experimental group. The total number of students was 63. There were 22 girls and 11 boys in the control group, while the experimental group consists of female students only.

7.4 Procedure

The study was conducted over a semester (a period of 14 weeks) with four contact hours a week. Before the study commenced, the students' previous final semester examination

scores were used as the pre-test to investigate whether there was any significant differences between both groups. At the final week of the semester, five students in the experimental group were randomly chosen for the face-to-face interviews.

In the study, both groups were taught by the same instructor. In the control group, textbook and workbook were used. Teaching and explanation were done using traditional classroom instruction. In the experimental group, the same workbook is used for practice but multimedia teaching instruction was employed to teach the course content to the students. Both groups were exposed to the same syllabus and given similar homework. In addition, the instructor also used his own method, "Dual-language Expanded Sentence Method" to teach sentence structures.

The experimental group was placed in TEC (technology-enabled classroom). TEC is a classroom equip with a computer, audio-visual player, multimedia speaker, LCD projector and automatic projector screen. The teacher controls the use of these equipments with a touch panel icon on the computer screen

For both classes, the instructor carried out whole class teaching. He usually stood in front of the class, while the students sat facing the whiteboard. Every lesson consisted of three sections: vocabulary, dialogues and sentence patterns. The learning materials are described in detail as follows.

7.4.1   *The Learning Materials of the Traditional Instruction*

The textbook used in the control group is the book used by the students learning Elementary Mandarin Level II in the main and all the branch campuses of the university. Every chapter consists of two situational dialogues, a list of new vocabulary, and a few sentence patterns.

Word List	
Shengci	Meaning in Malay
yifu	baju (cloth)
shoubiao	jam tangan (watch)
yanse	warna (colour)

Situational dialogue(s)
Ali :   Jintian wanshang ni you kong ma ?
Jiaming : You. You shenme shi ma ?
Ali :   Wo xiang jiao ni qu kan yanchanghui.
Jiaming : Ji dian qu?

Sentence patterns	
Jintian wanshang ni you kong ma ?	
Mingtian	2 yue 2 hao
Xingqiliu	Xiage xingqi

Dual-language Expanded Sentence method – instructor write part by part on the board.

1. Saya membeli barang. (I buy/bought goods)
    Wo   mai   dongxi.
2. Saya membeli barang di Jalan Ampang. (I buy/bought goods at Ampang Street)
    Wo   zai Anpang Lu   mai   dongxi.
3. Saya lebih suka membeli barang di Jalan Ampang. (I prefer buying goods at Ampang
                                                                Street)

    Wo   bijiao xihuan   zai Anpang Lu   mai   dongxi.

Table 1: Examples of the learning materials of the traditional instruction

7.4.2 *The Learning Materials of the Multimedia Teaching Instruction*

The experimental group did not use the textbook at all. It was replaced with Fast-Mandarin.2 VCD, a learning package developed by Goh et al. (2006) for the learning of Elementary Mandarin Level II. It comprises features such as hypertext, graphics, animations and audio. The dialogues in the textbook were transfer to video clips. In addition, the instructor himself used PowerPoint presentations to present the word list and sentence patterns.
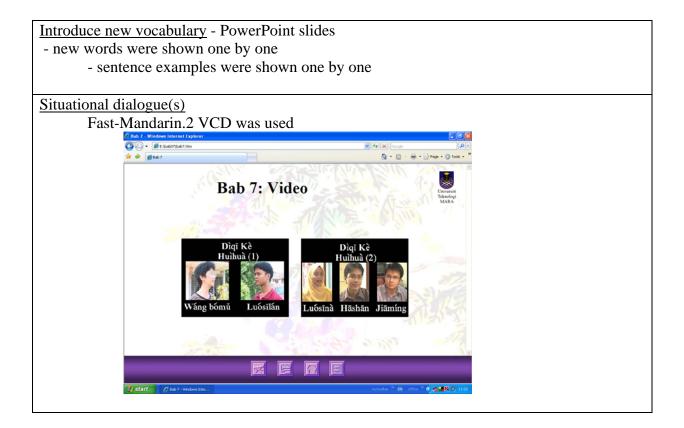

Introduce new vocabulary - PowerPoint slides
 - new words were shown one by one
        - sentence examples were shown one by one

Situational dialogue(s)
        Fast-Mandarin.2 VCD was used

Table of sentence patterns - Microsoft Word presentation	
Jintian wanshang Mingtian Xiage xingqi 2 yue 2 hao Xingqiliu	ni you kong ma ?

Dual-language Expanded Sentence method – PowerPoint slides

1. Saya membeli barang.
   Wo   mai   dongxi.
2. Saya membeli barang di Jalan Ampang..
   Wo   zai Anpang Lu   mai   dongxi.
3. Saya lebih suka membeli barang di Jalan Ampang..
   Wo   bijiao xihuan   zai Anpang Lu   mai   dongxi.

Table 2: Examples of the learning materials of the traditional instruction:

8   Discussion of Findings

8.1 The Qualitative Findings

8.1.1   Face-to-face Interview

Five students in the experimental group turned up for the one-to-one interview with the researcher. The questions asked were as below:

1. Do you like your instructor use multimedia teaching instruction to teach you? Why?

2. If you can choose, which class do you want to attend – the one with multimedia teaching instruction or the one using textbook?

3. Do you think the situational dialogues presented through VCD are appropriate?

4. What is your opinion on the use of PowerPoint presentation to introduce/teach new words?

5. You were asked to get into groups of four for a simulation of the situational dialogues after watching the video clips. What is your opinion on that?

6. After learning through multimedia teaching instruction, did you notice any change(s) in your attitude or your friends' attitudes towards learning Mandarin?

7. Did you get any other benefits after learning through multimedia teaching instruction?

Below are the results of the findings summary:

1. All the five respondents gave a "yes" answer and indicated that they like to learn Mandarin through the multimedia teaching instruction very much. Respondents gave similar reasons for preferring the multimedia teaching instruction. For them, learning through multimedia teaching instruction is very fun and exciting.

2. All the respondents said that they certainly prefer to attend the class with multimedia teaching instruction instead of attending the class that uses textbook. They indicated that the former benefits them more and is not boring.

3. Respondents liked to watch the VCD that presented dialogues in real situation. Besides, they get motivated watching the Malay actors speak good Mandarin.

4. They claimed that they learn faster and understand lessons better through watching video. They also felt good and excited to hear more "people" speak Mandarin in the class.

5. The respondents said that the new words introduced through PowerPoint presentation was not boring but useful, encouraging and easy to understand. They paid attention to the slides as they would not want to miss any. They also did not feel hesitant to request the instructor to "repeat" the words or sentences so that they can get the tones and sentences more correctly – something that they would not have done in a traditional classroom instruction class. However, two of the respondents thought that the slides were not catchy enough. They found a few of their classmates did not pay full attention during the second practice at the end of the class. They hoped the instructor would improve the quality of the slides by adding some animations, inserting relevant pictures and soft music so that it will be more enticing. They liked the animation done on the new words which were presented in the PowerPoint presentation, and as such they were more interested to learn.

6. Respondents accepted and liked the system. They felt the system is very good because it encourages them to work cooperatively and they feel happy and excited. The boredom of learning decreases compared to the old system (traditional instruction).

7. Respondents claimed that they and also their friends have a more positive attitude towards learning in class. They noticed that fewer students sent SMS under the desk; there were less day dreaming in the class; their attention increased; they were eager to study more because they could learn easily with colourful graphics and animations. They were eager to attend the Mandarin class. They felt time passes quickly compared to the old system.
    One of the participants recommended that multimedia learning instruction be incorporated into the teaching of all the Mandarin codes. If possible the workbook should also be made in the form of interactive multimedia.

8. Unexpectedly all the respondents revealed that they got the most benefit from the use of the Dual-language Expanded Sentence method which was used by the instructor to teach them writing correct Mandarin sentences. They can easily understand the sentence structure and they are very confident in writing Mandarin sentences now. They feel that learning through multimedia teaching instruction is enjoyable, beneficial and effective.

They hope the instructor will continue using this method to teach them. They like this method very much compared to the conventional method.

8.1.2   Classroom Observations

The learning atmosphere was observed to be lively and encouraging. During the first week, the students paid full attention on the PowerPoint presentation. Sometimes, they requested the instructor to "replay" certain words that they want to hear the pronunciation more.

Almost all the students seemed to enjoy this new way of learning. A few students read new words and sentences loudly and joyfully. The class always rang with cries of joy and laughter when they were watching video clips. Smiles were seen on the students' faces. The instructor observed that more students dare to try to guess the meaning of words or sentences as well as constructing sentences voluntarily. The instructor did not find students falling asleep or day dreaming in the middle of the class. It was very rare to come across students trying to do other work during the class.

However, one weakness that was observed was the students were busy copying the sentences shown on the slides. As a whole, the instructor found that the students showed good and positive respond towards the use of multimedia teaching instruction by him.

From the classroom observations and interviews with some students, it shows that the students like this new teaching instruction instead of the traditional method.

8.1.3   Discussion of the Qualitative Findings

From the students' responses in the interviews and classroom observation, most of them showed very positive response and expressed that they like this method instead of the conventional method. They welcome this "new" teaching method and they enjoy learning through it and hope that the teacher would continue implementing this method in the Mandarin class. It is believed that the students are motivated to perform better than their previous performance now that they learn Mandarin in a more fun, lively, interesting and motivating way. The instructor also discovered that through PowerPoint presentation, he had effectively taught sentence construction to his students especially through Dual-language Expanded Sentence teaching method. This is certainly   beneficial as the students can easily understand the grammatical rules and write correct Mandarin sentences.

8.2 The Quantitative Findings

A "pre-test" was carried out to determine whether there were any statistical differences between the control and experimental groups. The previous final semester examination was used for this purpose. As illustrated in Table 1, the result showed that the control group obtained 76.96 mean score compared to the experimental group which obtained 77.42 mean score. The mean difference is -.46, the t = -.218, P =.82, and this high P value indicated that the difference of the results for the control group and the experimental group was not significant (p > .05). The result indicated that there was no significant difference between both groups.

Group	n	M	MD	SD	t	df	P
Control	31	76.96	- .46	10.00	-.218	45.561	.82
Exp.	34	77.42		5.82			

* p < .05

Table 3: Independent Sample T-test t ('Pre-test')

At the end of this study, a post-test was carried out to compare the final semester examination means score of both group. The result as illustrated on Table 2 showed that the control group obtained 76.51 mean score compared to the experimental group which obtained 82.4 mean score. The mean difference is 6.00. The t = -2.70, P =.009, and this low P value indicated that the difference of the results for the control group and the experimental group was significant (p < .05). As such, we can say that the experimental group has higher mean scores than that of the control group, and the result is statistically significant.

Group	n	M	MD	SD	t	df	P
Control	31	76.96	-6.00	10.05	-2.70	61	.009*
Exp.	34	82.96		7.51			

* p < .05

Table 4: Independent Sample T-test (Post-test)

8.2.1 *Discussion of the Quantitative Findings*

The pre-test result showed that before the study started, both the control and experimental group were statistically not different. Although the experimental group's mean score is .46 higher than the control group, the difference is not significant at p < .05 level.

After one semester of learning Elementary Mandarin course through multimedia teaching instruction, the experimental group obtained higher means score. The difference between the means scores of both groups is bigger.

The mean difference of is only .46 during pre-test, and it increased to 6.00 for the post-test. The difference between both groups becomes statistically significant. This postulated that the learning of Elementary Mandarin course through multimedia teaching instruction has produced positive results. As such, it could be posited that multimedia teaching instruction could be used to replace traditional classroom instruction.

9 Recommendation for Further Research

The students in this limited study are only from two Mandarin classes in the branch campus and they form a relatively small group compared to the whole enrolment of students who study Elementary Mandarin. As such the findings from this study cannot be generalised to cover other campuses since the samples involved are too small. It is however, worthwhile to note that the results of this study is in line with other studies that show multimedia teaching instruction could be a replacement for traditional classroom instruction.

This study, even though is small, can be considered as a pilot study to examine the implementation of multimedia teaching instruction in the Mandarin class for non-native learners. It is recommended that in the future, more Mandarin instructors should implement multimedia teaching instruction in their teaching to replicate its effectiveness. Another consideration that may take off from here is to use and to study the effect of using an electronic workbook to replace the printed workbook that we normally use in class.

10 Conclusion

This simple study has proven that multimedia teaching instruction is more effective than traditional teaching instruction in terms of students' achievement. Although, there are proponents that claim learning is influenced more by the content and instructional strategy in a medium than by the type of medium (Schramm, 1977) and also that media are merely vehicles that deliver instruction but do not influence students' achievement (Clark, 1983), the effectiveness of multimedia teaching instruction cannot be denied.

Instructors should take advantage of multimedia teaching instruction not only to teach but also to create and enhance students' motivation, interest and achievement. Language instructors especially those who teach Mandarin as a third language should be cognizant of the benefits of using multimedia instruction. A combination of their skills, experience and the use of multimedia teaching instruction will definitely bring about a more effective teaching and learning.

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