

The Effectiveness of Web-Based Instruction and Cooperative Learning on the students' listening and speaking skills in Mandarin Language Learning

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Abstract: The purpose of the study was to investigate the effects of the instructional methods using web-based instruction (WBI) and cooperative learning (CL) on listening and speaking skills for Mandarin learning among non-Chinese learners at MARA University of Technology in Malaysia. The students' performance on listening skill was tested by using a standardized listening test while the performance on speaking skill was measured by two oral tests carried out after the treatments. A quasi-experimental study with posttest-only design was applied in the study. Three types of instructional methods, namely individual learning in an unstructured use of WBI (USLG), individual learning in a structured use of WBI (SLG), and cooperative learning with WBI (COOP) were applied. The dependent variables were the scores of a listening test and two oral tests. The sample consisted of 195 students who were taking Mandarin Level 1 at UiTM Terengganu branch campus. The "Learning Motivation for Mandarin" questionnaire was used to investigate any differences among the participants prior to the treatment. The treatment lasted for five weeks. The results of the analyses showed that there were no significant differences in terms of listening skills and speaking skills among the COOP, the SLG as well as the USLG groups. However the descriptive statistics reveals that the COOP group performed slightly better than the SLG group, and the SLG group performed slightly higher than the USLG group for both listening and speaking skills.

Keywords: web-based instruction, cooperative learning, Mandarin language learning

Introduction

Universiti Teknologi MARA (UiTM) offers three levels of Mandarin courses to prepare and train its students. The Elementary Mandarin Language course in UiTM Dungun is intended for the students who have no background in Mandarin or any character-based language. The students will be introduced to the Hànyǔ pīnyīn system (Romanized Mandarin). The students will thus have to learn Mandarin as the third language for their future profession practice [1]. For the purpose of this study, the samples for this research involved those taking Mandarin Level 1 (Elementary level). They are Bumiputera, non-Chinese speaking students who learn Mandarin as a foreign language.

Problem Statement

The three major problems faced include the students' mastery of Mandarin pronunciation, non-performance in listening and speaking aspects as well as time constraints in assisting students in tackling these three problems mentioned. It is hoped that by providing online learning materials such as through Web-based Instruction (WBI), it may supplement students in their Mandarin learning.

Literature Review

The research on Mandarin is at all times related to second language learning. Two teaching principles for Mandarin instruction, namely student-centered, and communicative competence by Li [2] are essentials for Mandarin instruction as they assist in building up students' communicative competence in Mandarin. Web-based instruction is increasingly being used to deliver course content in higher education [3]. This approach is in line with the constructivist philosophy of learning where the learner is encouraged to interact with the environment to construct individual knowledge structure [4]. Cooperative learning refers to instructional methods whereby students are encouraged or required to work together on learning tasks [5]. It is much related to the developing of motivation in the learners. However, most web based learning sites are still limited to the dissemination of teaching materials. Neither the strengths of Internet and Web have been maximized nor have the functions been fully utilized, for instance, supporting cooperative learning [6]. Thus, it is needed to validate the use of cooperative learning in strengthening WBI so as to result in maximum learning outcome. As web-based instruction with the support of cooperative learning that is in tandem with the social-psychological perspective on learning [7], the combination of these two perhaps will give a viable approach in supplementing Mandarin learning for non-Chinese learners.

Research Design

The purpose of this research is to investigate the impact of Web-Based Instruction and cooperative learning on the *speaking* and *listening* skills as well as their perceptions after using web-based instruction and cooperative learning to supplement their Mandarin learning. This research applies quantitative methodology. A quasi-experimental design was applied where six intact groups consisted of some classes of Malay students who are taking Mandarin courses at UiTM Dungun was used as the research samples. A random-sampling method was used in assigning the intact classes to one of the three treatment groups. The independent variable of this study was the instructional approach (unstructured individual learning of WBI learning materials, structured individual learning in WBI and cooperative learning in WBI), and the dependent variables were the students' speaking and listening skills as measured by one listening test and two oral (speaking) tests.

Activities for Each Group

Before the delivery of questionnaires, the participants were trained on the use of the supplementary materials on the *i-Learn System* and *MyTLS* (My Teaching and Learning System). *i-Learn System* and *MyTLS* are the online systems used in this study for web-based instruction. The learning materials were uploaded in these systems to supplement the Mandarin learning and teaching. Table 1 shows the activities for each group. The instructors used the feature in *i-Learn System* to monitor the students' activities. For Group1 (Unstructured use of WBI- USLG), the time spent by the students is not specified. Their accesses to the online activities were not recorded. While for Group2 (Structured use of WBI- SLG) and Group3 (cooperative learning with WBL- COOP), the time in which the students accessed to the online learning materials was recorded using the *i-Learn System*. Each student had to spend at least two hours per week for their online activities.

Table 1: Activities for Each Group

Activities for	Group 1 Unstructured Use of WBI	Group 2 Structured Use of WBI	Group 3 WBI + CL
Speaking skills	Using face-to-face instruction and online learning materials in an unstructured manner without any monitoring from instructors	Using face-to-face instruction and online learning materials in a structured manner with monitoring from instructors	Using face-to-face instruction and online learning materials along with cooperative learning method
Listening skills	Using face-to-face instruction and online learning materials in an unstructured manner without any monitoring from instructors	Using face-to-face instruction and online learning materials in a structured manner with monitoring from instructors	Using face-to-face instruction and online learning materials along with cooperative learning method

The Use of Cooperative Learning Method

The cooperative learning program was conducted over a period of six weeks with four contact hours a week. Group3 consisted of four members in each group. To achieve group heterogeneity, each group consisted of one high achiever, two average achievers, and one low achiever. This categorization is based on the students' pretest (the standardized Mandarin written progress test) results as shown in Table 2. The cooperative learning methods used in this study are Student Teams Achievement Divisions or STAD [8], Teams-Games-Tournaments or TGT [9] and Learning Together or LT [10], [11].

Table 2: Categorization of Students for Group 3

No.	Progress Test Result (%)	Group
1	80 and above	High achievers
2	51-79	Average achievers
3	50 and below	Low achievers

Research Subjects

This research was carried out in UiTM Terengganu, Dungun, Terengganu Darul Iman. A total of 195 students who are taking Mandarin Level 1 participated in this research.

Research Instruments

There are several sets of research instruments used in this study. They are pre-treatment instruments (Motivational Questionnaire [12]), "WBI Perception" [13]) administered for triangulation purposes, and treatment effect measurement instruments (Achievement tests - one listening test and two speaking tests).

Findings

The “Learning Motivation for Mandarin” questionnaire was administered to the participants prior to the treatment to determine that they are homogeneous in terms of motivation in Mandarin learning before the treatment commences. Based on the analysis, it was found that their motivational levels ranged from 3.92 - 4.06 (mean USLG:4.00; mean SLG:3.92; mean COOP: 4.06). The ANOVA test revealed that the differences in motivation between the three treatment groups were not significant ($F: 2.51$; $p: 0.84$). Thus, the three treatment groups are homogenous in terms of their motivational aspect prior to the treatment. Hence, this motivational aspect was not used as the covariate in this study, and as a result, ANOVA was used for the data analysis. ANOVA was then used to analyze the students’ *speaking* and *listening* skills, which are based on the two oral and one listening tests.

The results showed that there were no significant differences in terms of *listening* and *speaking* skills among the cooperative learning group (COOP), the structured individual learning group (SLG) as well as the unstructured individual learning group (USLG) in the web-based instruction environment. However the descriptive statistics revealed that the COOP group performed slightly better than the SLG group, and the SLG group performed slightly higher than the USLG group for the *speaking* skills. A post-hoc test also revealed that the COOP group significantly performed better than the USLG in terms of their *listening* skills (mean difference: 0.512; $p:0.036$). Nevertheless, no significant differences in *listening* skills were recorded between the COOP and SLG, as well as between SLG and USLG.

Discussion and Conclusion

Although there are no significant differences in terms of *listening skills* among the cooperative learning group (COOP), the structured individual learning group (SLG) as well as the unstructured individual learning group (USLG) in a web-based instruction environment, the post-hoc analysis revealed that the COOP group performed significantly better than did the USLG. When the students worked in group, they performed better as compared to working individually. Instilling listening skill is time-consuming and not an easy task especially for those students who are weak in listening [14]. The findings also revealed no significant differences in terms of *speaking skills* among the cooperative learning group, the structured individual learning group as well as the unstructured individual learning group in the web-based instruction environment. This is because speaking training is a very multifarious process. Speaking process requires the understanding of the receiving part through listening skill. The students who can listen well are only then able to reply in a proper manner. If the students cannot listen well, for sure they are not able to speak well. Therefore a NSD (non-significant difference) result on speaking skills might be observed due to the lack of listening skills of the particular learners. Any instructional technology employed does not ensure positive outcomes [15]. For perceptions concerning the effects on *speaking* skills, there is a significant difference between the three treatment groups. This means that the students of the SLG and COOP groups agreed that the web-based instructional materials were effective for the acquisition of speaking skill. The differences between USLG and SLG as well as between USLG and COOP are significant. However, the difference in perceptions between the SLG and COOP groups is not significant. The significant findings showed that WBI is beneficial for *speaking* acquisition. This confers with the findings of Zhu [16] in the study of the use of WBI to support ELT for *speaking* skill development. However studies on the effectiveness of the use of WBI to support *speaking* skill acquisition are still lacking.

Instructors are encouraged to use cooperative learning as expanding the dimensions for the teaching of Chinese as a foreign language [17]. For example, Chen [18] integrated group discussion to support online activities. Network cooperative learning activities carried out are e-mail contacts, network online help, network collaborative learning method, etc [19]. The application of web-based instruction is getting more attention in the teaching of Chinese as a foreign language [20]. To sum up, it is anticipated a feasible and viable use of WBI along with cooperative learning in supplementing the on-campus Mandarin courses in UiTM in particular and for the teaching of Chinese as a foreign language in general.

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