

THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 3: eLearning Pedagogy Research

Final Report (2016-17)

Report due 30 April 2018

Please return by email to The Ad hoc Committee on Planning of eLearning Infrastructure
mmcd@cuhk.edu.hk

PART I

Project title: Examining the effectiveness of audio-visual teaching materials for second language Cantonese learners

Principal supervisor: LEE Siu Lun

Co-investigator: CHAN Chi Leung

Department / Unit: Yale-China Chinese Language Centre

Project duration: From Apr 2017 to June 2018

Date report submitted:

1. Project objectives

Is the project on track to meet its objectives?

At this stage, the project is able to produce some findings (reported in upcoming sections). They would be consolidated in the form of departmental workshops.

Have the objectives been changed as a result of the experience of working on your MMCDG project?

This project used experimental research to examine how the arrangement of linguistic knowledge teaching and language skills practice in e-learning design affect the effectiveness of learning Cantonese as a second language. The e-learning design under investigation consists of three models, namely Accuracy Model, Fluency Model and Grammar Knowledge Model. In this research, 12 CUHK Non-Cantonese speaking international undergraduates were recruited to participate the Pretest-Intervention-Posttest experiment. Given the limited sample size, this research used a single group design with repeated measurement instead of comparison group design previously planned. Besides, new pronunciation videos were created to complement the audio-visual feedback training in the Accuracy Model. As a result, the Pretest-Intervention-Posttest experiment was more of a pronunciation focus and Fluency Model and Grammar Knowledge Model were given more of a subsidiary role.

Has the project created any impact as expected?

Preliminary findings provided some evidence to support web-based pronunciation training. Such training shall comprise both audio-visual feedback and annotated PowerPoint videos in order to enhance pronunciation accuracy.

2. Process, outcomes or deliverables

Please specify the number of micro modules produced, and the course(s) (with course codes and titles) that have used the micro modules in Part IV, and provide more detailed descriptions in here. Must specify duration of each micro-modules (in terms of students online contact hours), total duration time of all deliverables and style. (With reference to the “Summary of video presentation styles” developed by CLEAR)

The following table shows the intervention used in the research. The training mainly focuses on language accuracy. Each training session lasts around 30 minutes. Subsections specified in the content last around 5-10 minutes. If extra time is available, students also attempted the Grammar Knowledge Model and Fluency Model. (*S2 Video, according to the style guides of CLEAR refers to PowerPoint slides with narration)

Training session	Content	Format
1.	1.1 Yale Romanization Intro video	S2 Video
	1.2 Yale Romanization Intro matching	Web-based matching exercises
	1.3 High level tone video	S2 Video
	1.4 High level tone pronunciation exercises	Audio-visual feedback exercises
2.	2.1 Review of training 1	Oral response on explicit knowledge
	2.2 High rising tone video	S2 Video
	2.3 High rising tone pronunciation exercises	Audio-visual feedback exercises
	2.4 Long e short e video	S2 Video
	2.5 Long e short e pronunciation exercises	Audio-visual feedback exercises
3.	3.1 Review of training 2	Oral response on explicit knowledge
	3.2 Mid-level tone video	S2 Video
	3.3 Mid-level tone pronunciation exercises	Audio-visual feedback exercises
	3.3 Long u short u video	S2 Video
	3.4 Long u short u pronunciation exercises	Audio-visual feedback exercises
4.	4.1 Review of training 3	Oral response on explicit knowledge
	4.2 Long yu video	S2 Video
	4.3 Long yu pronunciation exercises	Audio-visual feedback exercises
	4.4 Long i short i video	S2 Video
	4.5 Long i short i pronunciation exercises	Audio-visual feedback exercises

5.	5.1 Review of training 4	Oral response on explicit knowledge
	5.2 Low falling tone video	S2 Video
	5.3 Low falling tone pronunciation exercises	Audio-visual feedback exercises
	5.4 Long o short o video	S2 Video
	5.5 Long o short o pronunciation exercises	Audio-visual feedback exercises
6.	6.1 Review of training 5	Oral response on explicit knowledge
	6.2 Low rising tone video	S2 Video
	6.3 Low rising tone pronunciation exercises	Audio-visual feedback exercises
	6.4 Low level tone video	S2 Video
	6.5 Low level tone pronunciation exercises	Audio-visual feedback exercises
7.	7.1 Review of training 6	Oral response on explicit knowledge
	7.2 Long eu short eu video	S2 Video
	7.3 Long eu short eu pronunciation exercises	Audio-visual feedback exercises
	7.4 Long a short a video	S2 Video
	7.5 Long a short a pronunciation exercises	Audio-visual feedback exercises
8.	8.1 Review of training 7	Oral response on explicit knowledge
	8.2 Overall review - six tones video	S2 Video
	8.3 Six tones pronunciation exercises	Audio-visual feedback exercises
	8.4 Overall review – final lengthening video	S2 Video
	8.5 Final lengthening pronunciation exercises	Audio-visual feedback exercises

Have the research design, methodology and timeline been changed/adjusted?

Single group design was used instead of comparison group.

Overall, was the project completed satisfactorily?

The project at this stage is satisfactory.

3. Evaluation Plan

Have you altered your evaluation plans?

For Accuracy Model, as indicated in previous section, single group design was used. Around 200 test tokens in Pre-test and Post-test were extracted through PRAAT as planned, rime duration changed between Pre-test and Post-test. The changes became the focus instead of formant values and trajectories as previously planned. The remaining tasks are to explore whether professional rater judgement and non-trained native speaker judgment on accuracy/intelligibility will correlate with rime duration gains.

Does your evaluation indicate that you have achieved your objectives?

Preliminary findings suggest that objectives have been achieved, although further investigations have to be carried out.

4. Dissemination, diffusion and impact

Please provide examples of dissemination: website, presentations in workshops or conferences, or publications.

We presented our interim project progress in 2017 CUHK Expo to around 20 attendees in our session. We also plan to disseminate in the form of departmental workshop, newsletter and in academic conferences when all the results are consolidated.

Please provide examples of impact: how the research results/outcomes/findings can be extended to other disciplines.

The preliminary result can be extended to other second language teaching and learning contexts. First, subject's rime duration and first syllable to second syllable rime ratio have been improved in our study. In some languages such as English and Japanese, duration may play an even more important role. The current result may prompt a more extensive use of web-based Computer-assisted pronunciation training to enhance language teaching and learning.

Second, through investigating fluency tokens produced by learners of previous elementary courses, it is found that the frequency of disfluency types (fillers, breakdown, pause) differ. The current study suggested that breakdown type disfluency occur more frequently if learners try to speak more, while filler type disfluency does not have such correlation. Further investigation has to be carried out in order to confirm whether filler type disfluency tends to be a first language speaking style transfer. This result may have implication on oral assessment rubrics. It may also be extended to disciplines such as education studies, second language teaching, second language assessment, communication studies, etc.

Please describe how the research results/outcomes/findings may support the University's strategic aims in promoting eLearning.

This project supports a more extensive use of e-learning. Especially in pronunciation training courses at higher education level (mostly second language learning courses), teacher pronunciation demonstration videos should be provided. Web-based audio-visual feedback such as 'Recast' is also useful to support pronunciation training along with classroom instruction. Besides, pronunciation knowledge can also be delivered in video format so that students may learn according to their own needs.

PART II

Financial data

Funds available:

Funds awarded from MMCDG	\$ 89,600
Funds secured from other sources (please specify _____)	\$ Nil
Total:	\$ 89,600

Expenditure:

Item	Budget as per application	Expenditure	Balance
Staff cost	53,760	60,000	
Conference fee and travel expenses	11,915	15,000	
Student helpers	23,925	14,600	
Total:	89,600	89,600	

PART III (Paste the SPSS table here)

Lessons learnt from the project

Please describe your way forward.

With the preliminary results, the way forward is to consolidate results and present them in the form of academic papers.

Please describe any of the following item(s) accordingly:

- *Key success factors, if any*

Continued and motivated participation in the intervention is necessary. Originally there were 12 international undergraduates participated, but 2 dropped out resulting 10 subjects in the intervention stage.

- *Difficulties encountered and remedial actions taken, if any*

Major difficulties are limitations on time and resources. We planned to investigate all three models (Accuracy, Fluency, Grammar knowledge Models) through the Pretest-Intervention-Posttest design, but it turned out to be too compact. One of the remedial actions is focusing on collecting data regarding Accuracy Model in the experiment first. Data regarding Fluency and Grammar Knowledge Models can be collected in previous courses and analyzed at a later stage. Another remedial action is to analyze partial data in the pre-test and post-test first so that some emerging patterns can be analyzed to obtain preliminary findings.

- *Suggestions to CUHK, if any*

- *Example: what should be done differently?*

Given the limitation and effort needed to recruit experiment participants, CUHK may consider allowing language course instructors to give 'extra marks/credit in the course' as a reward for students who are willing to spend time to explore ways to improve their language proficiency. Such practice we think is quite common in some universities especially linguistic and psychology courses. One more advantage of recruiting students who enrolled in the course is they have a stronger motivation to improve the target language proficiency. This practice is also expected to enhance more collaboration between teachers and promote more research outputs.

PART IV

Information for public access

Summary information and brief write-ups of individual projects will be uploaded to a publicly accessible CUHK MMCDG website. Please extract from Part I the relevant information to facilitate the compilation of the publicly accessible website and reports.

1. Keywords

Please provide five keywords (in the order of most relevant to your project to least relevant) to describe your micro-modules/pedagogies adopted.

- (Most relevant) Keyword 1: Audio-visual teaching materials
 Keyword 2: Audio-visual feedback
 Keyword 3: Computer-assisted pronunciation training (CAPT)
 Keyword 4: Cantonese as second language
- (Least relevant) Keyword 5: Second language accuracy and fluency

2. Summary

Please provide information, if any, in the following tables, and provide the details in Part I.

Table 1: Publicly accessible online resources (if any)
(a) Project website: <i>If a publicly accessible project website has been constructed, please provide the URL.</i>
(b) Webpage(s): <i>If information of your project is summarized in a webpage (say a page in the department's or faculty's website), please provide the URL(s) in here.</i> Courses materials in blackboard: CLCC1113, Please contact the project investigators regarding username and password login.
(c) Tools / Services: <i>If you have used any tools or services for the project, please provide names of the tools or services in here.</i> An online platform called Webswami which supports audio-visual materials delivery and feedbacks was used. Operation in other platforms' such as Blackboard Learn will also be explored in the future.
(d) Pedagogical Uses: <i>If any flipped classroom activities have been conducted, please provide information in here. If relevant, please indicate how your project output can be used to support flipped classroom activities.</i> Grammar knowledge videos were uploaded to elementary Cantonese courses. The course used a post-video assignment in the beginning of the classes to assess whether students prepared for classes. Class codes and Year of offering are noted below.

Table 2: Resource accessible to a target group of students (if any)			
<i>If resources (e.g. software) have been developed for a target group of students (e.g. in a course, in a department) to gain access through specific platforms (e.g. Blackboard, facebook), please specify.</i>			
<u>Course Code/ Target Students</u>	<u>Term & Year of offering</u>	<u>Approximate No. of students</u>	<u>Platform</u>
CLCC1113A-D (Used grammar knowledge)	2017-18 Term1	60	Blackboard

videos)			
CLCC1113A-C (Used grammar knowledge videos)	2017-18 Term2	60	<i>Blackboard</i>

Table 3: Presentation (if any)	
<i>Please classify each of the (oral/poster) presentations into one and only one of the following categories</i>	Number
(a) In workshop/retreat within your unit (e.g. department, faculty)	
(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)	
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	<i>1</i>
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	
(e) In international conference	<i>2</i>
(f) Others (please specify)	

Table 4: Publication (if any)	
<i>Please classify each piece of publications into one and only one of the following categories</i>	Number
(a) Project CD/DVD	
(b) Project leaflet	
(c) Project booklet	
(d) A section/chapter in a booklet/ book distributed to a limited group of audience	
(e) Conference proceeding	
(f) A chapter in a book accessible internationally	
(g) A paper in an referred journal	
(h) Others (please specify)	

3. A one-page brief write up

Please provide a one-page brief write-up of no more than 500 words and a short video.

This study employed a Pretest-Intervention-Posttest design to study the effect of audio-visual training on second language learning, with a focus on pronunciation training. 10 international subjects participated in the study. Based on the preliminary analysis, it is found that (1) The duration of the second syllable of the learners was lengthened significantly with a medium effect size (2) The ratio of Rime2/Rime1 are closer to the native speaker norm after training.

(3) Less variance in bi-syllabic word ratio is found after the intervention. (4) Result of two-way ANOVA shows that both token-type (Tone1, Tone3, Tone6) and Mandarin level of participants (Intermediate or above VS beginner) do not moderate the training effect statistically. The result of this study is in line with the plausibility of previous Computer-assisted pronunciation training (CAPT) studies. For Fluency Model, anonymized trials from 29 students in previous elementary courses were extracted for analysis. Overall question completion rate is around 60%. It may suggest that the Fluency Model may need to accommodate slower learners in order to raise the completion rates. In order to identify representational disfluency types among the elementary learners, trials of the students have been transcribed and disfluency types (filler, breakdown, pause) were analyzed. Based on the preliminary analysis, it is found (1) Number of words uttered correlate with breakdown with a medium effect size ($r=0.6$, $p<0.05$) (2) Number of words uttered does not correlate with filler nor pause. Further investigations have to be carried out in order to confirm whether filler is a transfer of first language speaking style. Besides, professional rater judgment and native speaker perception may be used to test whether a relationship exists between disfluency types and listener perception. For Grammar Knowledge Model, further investigations have to be carried out later.