COMPUTER-AIDED PRONUNCIATION PRACTICE IN LEARNING CHINESE OUTSIDE THE TARGET LANGUAGE ENVIRONMENT

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ABSTRACT

This paper explores the possibilities of using computer aided pronunciation practice in teaching Chinese as a foreign language. 8 students from the University of Zimbabwe participated in an experimental approach where participants were recorded producing some Chinese sounds and later edited audios were given back to the students for their own listening practice. The experiment showed that this method helps to give students better perception of the Chinese sounds and it is also motivational in the sense that it gives students confidence as they can hear themselves speaking fluently in the audio. The method also proved to be an effective self-criticism tool for Chinese language learners because students can compare their own pronunciation with that of the native speaker. This paper concluded that though this pronunciation practice is time consuming, it can be an effective teaching method if it is supported by both teachers and students.

Keywords: *Computer-aided Pronunciation practice; sound perception; non-target language environment*

INTRODUCTION

This paper aims to explore the possibilities of using computer aided pronunciation practice in language learning. It attempts to describe some of the procedures that can be applied when learning a language outside the target language's environment to increase students' sound perception of the target language. According to the Omniglot an online encyclopedia, the better your pronunciation, the better people will understand you and the easier you will find it to understand the native speakers (http://www.omniglot.com/language/pronunciation.htm). This shows that there is need for all second language or foreign language learners to strive for good pronunciation. Zhang and Yin (2009:141) points out that; "The ability of speaking [a language] embodies the correctness of pronunciation and intonation and [it] directly affects the appropriate communication in conversation", thus pronunciation holds a crucial position in language learning.

However, in order to attain better pronunciation one has to have good perception of the target language's sound system. It is not possible for language learners to be able to produce a sound they cannot hear. Zhang and Yin (2009:142) also agrees to this notion, thus they argue that; "if you cannot hear it [target language sound] then you cannot even attempt to pronounce it, and the problem of perception needs to be overcome before any progress can be made."

In foreign language learning the traditional pronunciation practice methods include listening to native speakers, listening to radio or television programmes, native speakers' recorded audios and reciting etcetera. These methods are quite effective not only in a non-target language environment but also when learning a given language in its target environment, however during teaching Chinese in the Confucius Institute at the University of Zimbabwe many students complained that the voices they were hearing from the Chinese audios were too foreign and they would not hear anything except just a combination of sounds. In other words they were "phonologically deaf" as Pierre Badin, Gérard Bailly, and Louis-Jean Boë (1998) would put it. As a result, poor perception of the Chinese sounds was affecting their proper pronunciation. Such complains and pronunciation problems in Chinese might not be attributed to Zimbabwean students only but possibly to many other students learning Chinese language whose mother tongues are basically deep voiced languages. This is possibly because the Chinese sound system is completely tonal and has confusing blade palatal and dorso-velar sounds.

Therefore, in order to improve students' pronunciation as well as sound perception for Chinese sound system there was a necessity to engage students into an active practice. This is the reason why there was an attempt to use computer-aided pronunciation practice where through the use of sound editing softwares students would be able to listen to their own voices and compare with that of the native speaker. The main aim was to improve students' sound perception of the "alien" sounds of Chinese language.

AIMS AND JUSTIFICATION

This research aims to show the possibilities of using students' own pronunciation through sound editing softwares to help improve sound perception of Chinese's sound system, which in turn helps to create a base for pronunciation practice. This research though is basically based on the University of Zimbabwe's Chinese language teaching and learning experience; it is also expected to benefit other researchers, foreign language teachers as well as learners who are not necessarily researching, teaching or learning Chinese language only.

This research was carried out after teaching Chinese language for a semester of about 3 months at the University of Zimbabwe. It was observed that even after three months of 6 contact hours per week students were still complaining that they could not understand what they hear from the audios, also some were still forgetting what they would have learnt and some were even still mispronouncing basic Chinese sounds. This was mainly due to the fact that students had low motivation in the subject and apart from practice in class there was no other platform for practicing their pronunciation for Chinese sounds. Therefore, this research was carried out mainly to provide students with a platform for practice; it was also meant to raise students' listening ability so that they will be able to understand the dialogues on Chinese audios.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

This paper is based on the hypothesis that perception for "foreign" sounds is mainly made difficult to perceive because it is produced by a foreign person, if the same sound is produced by a native voice it becomes easy to grasp. Adrian Wagner (2012)

argued that perception of unfamiliar foreign language sounds without first language equivalent is troublesome. This therefore implies that in second language learning sound perception of the native language forms the base of acquisition of the target language. Adrian Wagner (ibid) further explained that; "once perception of foreign speech sounds is accurately established, this perception provides a foundation for accurate production". It is also believed that when one has learnt a first language, other speech sounds are typically perceived in terms of the phoneme categories of the native language (Vincent J. etal 2001:103).

In this paper it is therefore hypothesized that it is possible to improve learners' sound perception for a foreign language by recording the learner under teacher's guidance after which among the learner's recorded sounds a closer to standard pronunciation sound will be selected. The learner will then listen to his or her own pronunciation which is native to him or her; this will then form the base of acquiring a foreign sound. By comparing his/her own pronunciation to that of the native speaker, the learner will be able to attain a better perception and pronunciation of the foreign sound. This process can be defined as de-foreignizing a sound. In this case de-foreignization refers to the process of making a sound that does not exist in the sound system of the learner's native language, become perceivable by a learner. The sound will become native to the learner because at the end he or she will be listening to his or her own pronunciation.

RESEARCH QUESTIONS

This research seeks to answer the following questions;

1). How can students' perception of target language be increased in a non-target language environment?

2). How can a language teacher motivate students' to practice their pronunciation outside the target language's environment especially in an environment where students are not highly motivated to learn the given foreign language?

3). Is it not possible to use cheap and easy computer aided pronunciation practice affordable in developing countries?

AN OVERVIEW OF SOUND PERCEPTION AND PRONUNCIATION PRACTICE

There are so many researches relating to sound perception and pronunciation practice in second language learning such as Major, R.C. (1987), Flege, J. E. (1995), Rochet, B. L. (1995) just to mention a few. Many of these researchers agree to the notion that language learners outside the target language environment normally experience listening challenges. For instance, Flege (1995:234) states that "foreign accents may make non-natives difficult to understand, especially in non-ideal listening conditions." It is also generally agreed that poor sound perception is the main cause for listening challenges. According to Dr. Alfred Tomatis as quoted in Thompson (1993:152); "before children speak a language, they must be able to hear the particular sounds and auditory frequencies of that language". This therefore suggests that the base for good pronunciation is good perception of the target language's sounds. There are so many

other suggestions from different researchers on how to attain good pronunciation, for instance Patricia Ashby (2012) recommends that at tertiary level a short induction course in articulatory phonetics course could be helpful for foreign language learners.

John Field (1995) proposes dictation as one of the ways of promoting lexical perception. However, in order to improve language learners' sound perception and pronunciation practice especially outside the target language environment there have been new technological developments across the world. One such development include the Virtual Talking Head and Speech Mapping proposed by Pierre Badin, Gérard Bailly and Louis-Jean Boë (1998), in this method the teacher uses audio-visual speech stimuli in order to evaluate and improve the learner's perception of the target language's sounds as well as helping the learner produce the corresponding articulations by acquiring the internalization of the relations between articulatory gestures and resulting sounds. All such methods however require skilled and expensive technological support that might not be afforded in developing countries such as Zimbabwe.

Most developed countries are now developing language learning softwares to help language acquisition mostly outside the target language environment. For example, there are so many effective foreign languages' learning softwares such as; the Rosetta Stone software, the 101 Languages of the World software, the Instant Immersion 33 Languages software and many others. Such softwares follow the notion that; "in second language teaching many teachers test listening rather than teaching it" (Sheerin 1987). The modern language learning softwares allow the learner to practice their pronunciation by giving the learner an option to record him or herself and a computer compares the learner's pronunciation to that of the native speaker after which it gives a score for resemblance level.

For example, when using Instant Immersion 33 Languages software one needs a computer or just CD player, a sound card and a microphone for the practice. This learning software is more like a game where you play and win or lose. For pronunciation practice the speaker plays a word and immediately repeats it into the microphone, then play back the sequence and can hear the speaker's pronunciation compared to the native speaker. San Antonio former president of Alamo PC, in a review of the Instant Immersion 33 Languages software once mentioned that at the end of practice session she felt quite confident with several words and phrases. Also she felt the process was quite funny since the program is totally aural and does not require reading. http://www.alamopc.org/pcalamode/reviews/current/R20040703.shtml).

While all such softwares are really proving to be very effective in language learning in many countries, the situation is completely different in Africa especially in Zimbabwe. Though at the present many people are now using computers and internet in Zimbabwe, it should be noted that the motivation to learn foreign languages is low and cannot be compared to that of students in developed countries. Also students do not buy these softwares due to economic hardships, lack of interest, lack of information about such softwares, lack of technological know-how and many other reasons. At this point it is important to describe the Chinese language learning situation at the University of Zimbabwe

In the case of the Confucius Institute at the University of Zimbabwe, many students enroll into Chinese language program not because they like the subject but mainly because they would have been given the option by the school authorities. Apart from a few Short Chinese course students (mainly travelers or business people) the rest of the students do Chinese as a third subject of their Bachelor of Arts course, foreign language course for Tourism and Hospitality degree or as an optional course of Honors in Linguistics degree and other few curious students from such departments as Psychology, Business studies etc. This thus entails that these students are basically over-occupied with other core-courses and they do not have motivation to speak Chinese, rather they just want to pass the course. In order to engage these students and give them confidence that they can speak Chinese there was therefore need to directly and indirectly motivate the students, to make them feel that they have the potential to improve their pronunciation.

RESEARCH METHODS

An experimental approach was used with students varying from early beginners to upper level beginners. Students were recorded and sounds were edited to make continuous audios which were then given back to the participants as part of their sound practice mp3s or videos. The impact of the experiment was then evaluated by both teachers and students.

The whole experiment was evaluated through discussions with other Chinese language teachers. Discussions were quite helpful in terms of providing ideas on how to improve this approach of pronunciation practice. Apart from discussions, questionnaires were also used to gather information about the students' experience during the experiment and after watching the videos. Recorded audios were also played to other students who were not part of those who participated in the recording process and questionnaire method was used to gather their opinions on this approach to Chinese pronunciation practice. This was helpful in evaluating the experiment's impact to both the participants and other students.

Experiment Design and Aims

8 students from the Confucius Institute at the University of Zimbabwe participated in this experiment, for more details about the participants see Appendix1. Before the experiment was done it was advertised both on the Confucius Institute's facebook group and in class inviting students to participate in the pronunciation practice, only 8 out of 41 students from the 2011 Bachelor of Arts level 1 class responded positively. This was a clear sign that students were not motivated to learn Chinese, neither were they eager to try and improve their pronunciation. The experiment was divided into two parts the first was a Chinese lexical and semantic pronunciation computer-aided practice and the second was a Chinese phonetic system computer-aided pronunciation practice.

Materials Used

Recording and editing process required; Computer, microphone, recording software, sound editing software, video editing software and a camera. The participants of this experiment were supposed to have any one of the following; computer, cell phone that

can play mp3 audios, mp3 player or anything that could play audios or videos. Some participants did not have personal computers or any of the above so they had to borrow from their friends.

Task

Four participants for the lexical and semantic pronunciation experiment were given short written dialogues which they had to memorize or just familiarize with over a period of 2 days. On the day of recording each word or phrase was then read under the guidance of the teacher. After this the participants had to do a video recording for the situation in the dialogue. The videos were later combined with the edited recorded dialogue. For the phonetic experiment, the other four participants were asked to read the 21 Chinese consonants and the 4 Chinese tones using the syllable [ma]. Full dialogues and consonants which were recorded are listed on Appendix 2. After editing of the videos and audios the major task for the participants was then to listen to their own voices and imitate the sounds or phrases and compare themselves to the pronunciation of the native speaker. Since this is a continuous process students were encouraged to keep the videos and audios so that whenever necessary they could refer to them for pronunciation guide.

Recording

All the recordings were done in the Confucius Institute's language lab which was a quiet environment. An Intel Core 3 Toshiba Satellite laptop and a new microphone were used for recording. AVS screen capture was used for all voice recordings. During the recording students would imitate the teacher's pronunciation for a given tone, consonant, word or phrase for several times until the student manages to produce at least clear sound or next to standard pronunciation. Recordings for phrases took a period of three days since there was need to repeat certain phrases for several times and also there was need to shoot the videos, while all the phonetic system recordings were done in one day only.

Editing

AVS Video Editor Software was used for editing the recordings. The researcher preferred to use this software instead of other popular video editors such as Adobe Premiere Elements, Ulead VideoStudio 9.0 Video Editor, Sony Vegas Movie Studio HD Platinum 10 Suite and so forth, mainly because AVS Video Editor is user friendly, it is not complicated and it does not occupy too much space in the computer. Furthermore, the final video does not need to be reconverted into playable formats as in other softwares. Also AVS Video Editor Software can be downloaded for free thus it is affordable. A simple editing process which required somebody who could differentiate between appropriate and inappropriate sounds was involved as described below;

Editing Process

The first stage was to import the audio files to AVS Video editor and then drag the audio file to the sound editing column, where the audio file could be cut, separated and or mixed. This was an important stage because if wrong sounds were mixed this

could have given the listeners an inappropriate point of reference during their pronunciation practice. Figure 1 and figure 2 below shows wave sound before cutting and wave after cutting during the editing process.

Figure 1: Wave sound before cutting of inappropriate sound [m]

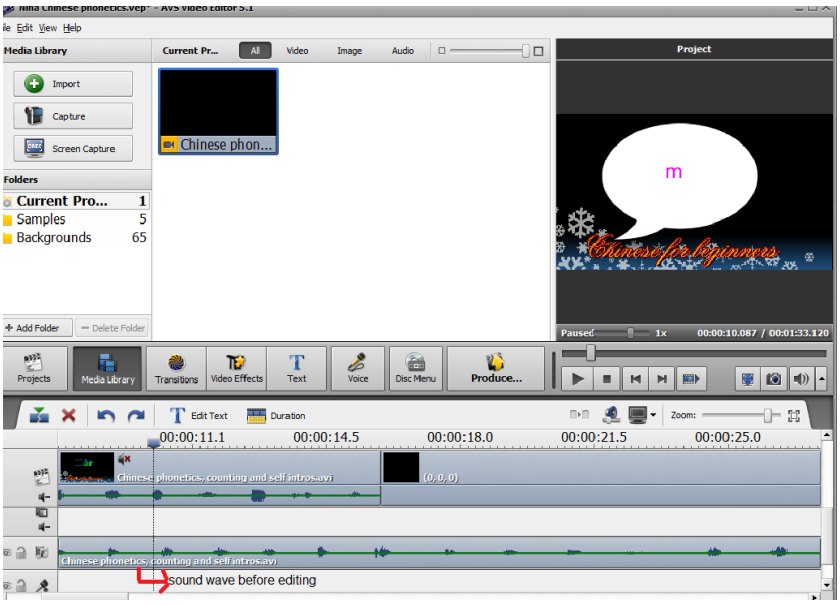
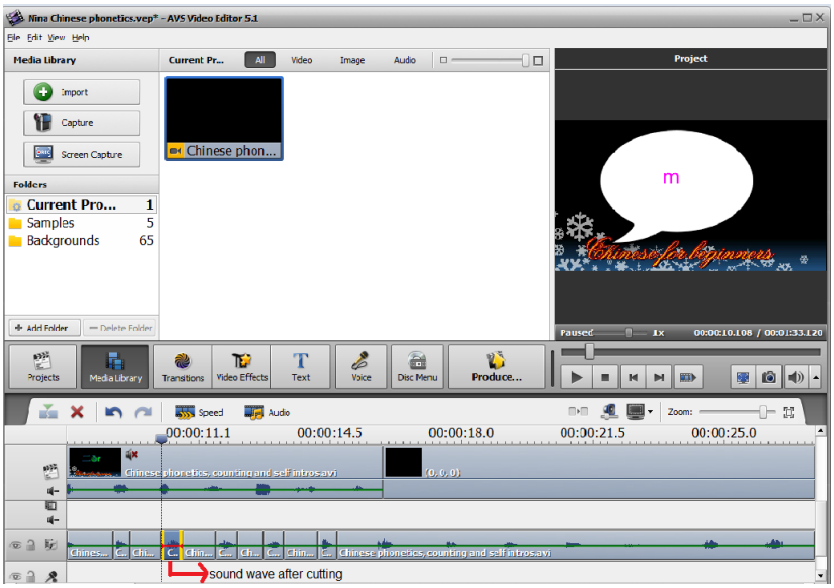


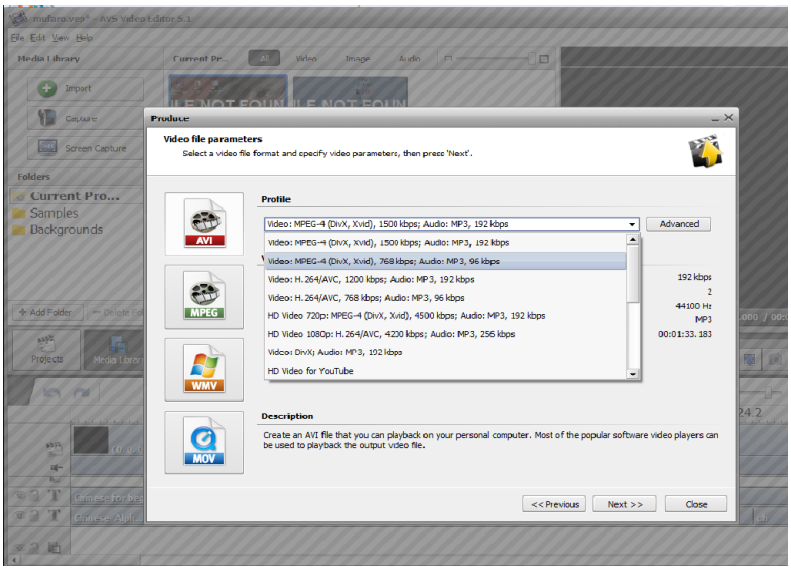
Figure 2: Wave sound after cutting of the inappropriate sound [m]



As can be seen above, subtitles were also added so that students could both listen and read out what they hear. After cutting as shown above; the inappropriate parts and sounds were deleted, the proper or fairly well produced sounds were then organized alternating with native speakers' pronunciation. For the Chinese lexical and semantic pronunciation computer-aided practice the edited phrases were not alternating with native speakers' pronunciation so as to give an impression of fluent dialogue. Separate audios for the dialogues were however made available for comparison and

self-criticism. The edited videos were then produced in AVI video format. The main advantage of the AVS Video Editor is that it allows production of videos in different formats suitable for different video players as shown in the screen capture below taken during video production.

Figure 3: Video formats choice



Two videos for dialogues and two videos for the Chinese consonants and tones were produced and were later converted into mp3 format using some free video converter softwares. This was done to allow all students to have access to their own recordings; those who did not have computers to play the videos would play the audios on their own cell phones or any other mp3 players.

Experiment Results and Observations

The final videos and audios were distributed to participants who after listening to their own voices gave positive feedback. The experiment showed that participants were excited to hear themselves speaking fluent Chinese such that they would keep on playing the audios either on their cell phones or computers. Also it was observed that some participants were even playing these audios to their friends and or family members. Whether the participants were showing off or not it is assumed that by repeatedly playing the audios and videos this would improve their listening and pronunciation skills.

The experiment also showed that students could imitate themselves better than they could imitate either the teacher or the voices they hear from the Chinese audios. Thus this showed that during the recording if a next to native pronunciation is captured then students will be able to imitate what they hear and achieve better pronunciation.

Apart from the above the experiment proved that the recording process is a method of pronunciation practice in itself. As the students follow teacher's pronunciation repeatedly they are in a way practicing both pronunciation and listening. As observed from this experiment after recording some participants would spontaneously say out sounds, words or phrases they produced during the recording. This shows that the

recording process leaves a profound impact on the participants' thoughts, feelings and attitudes towards the target language.

Experiment Evaluation

The experiment was evaluated through questionnaire method by Chinese language students and through discussions by teachers in the Confucius Institute at the University of Zimbabwe. Some of the participants commented that they were shocked to hear themselves speaking fluent Chinese and could not believe that it was their voices. While 100% of the questionnaire respondents showed that this method was a possible effective method for pronunciation practice, some Chinese language teachers argued that the method was likely to promote pronunciation bias. However, considering that the pronunciation problems which were being experienced were mainly due to lack of motivation, the majority of teachers argued that this method was a crucial part of Chinese pronunciation practice outside the target language environment because it stimulates interest in the target language. Below are some of the motivational aspects, advantages and disadvantages of this computer-aided pronunciation practice.

Motivational Aspects of the Experiment

The process had a two way motivational effect to the Chinese language students. Firstly, it was a direct motivational experience for the participants of the project. In the questionnaire response some participants mentioned that they were able to produce some of the sounds they used not to be able to pronounce well since they were now imitating their own voices which were clearer than the native speakers' voices.

Secondly, after the experiment the audios and videos were played for the other students who did not participate in the project. After watching the videos the students were asked to fill in a questionnaire. All the respondents of the questionnaires showed that they were now interested in participating in the next pronunciation practice. The aim was not to make the other students participate in the experiment but to show them how their colleagues could speak Chinese. It was observed that the reason why the other students were now willing to join in the project was mainly because they felt that the participants' spoken Chinese had improved. This could be defined as the "cheating effect". The truth is that their Chinese levels were same but after editing the recorded speech parts and combining them, they were now sounding fluent and closer to the native pronunciation. Therefore, other students were now eager to participate so that they can improve their pronunciation. In a way they wanted to compete with those 8 participants.

In this paper it is concluded that computer-aided pronunciation practice does not only help the students to practice their pronunciation but gives them assurance that they can achieve better pronunciation. Under strict teacher's guidance students can record excellent pronunciations which in turn are the standard measurement of what the student can achieve. However, though there are many advantages for computer-aided pronunciation, the method has its own shortcomings as will be summarized below.

ADVANTAGES OF THE COMPUTER AIDED PRONUNCIATION PRACTICE

The process is entertaining and it is not as serious as in the traditional learning environment. However, this depends on the method used in recording. The video shooting method is more entertaining because it involves students enacting a short story in a given scenario. This is more like recreating the target language environment. However, if students are not interested in acting they might find it tiresome or boring.

The other advantage of this method is that, by allowing students to listen to their own voices while speaking a foreign sound it becomes clearer and easier to understand. In other words the sound is "de-foreignized". In this case the sound is de-foreignized in the sense that a foreign sound is turned into a local sound by the learner him or herself.

The other major advantage of computer-aided pronunciation practice is that it is affordable and easy to use hence it is appropriate for developing countries such as Zimbabwe. A one day workshop would be enough to train both teachers and students on how to use the softwares to edit the sounds and produce audios and or videos. Therefore, if this method is well implemented teachers can use it as part of their teaching method without need to take any extensive video editing courses.

DISADVANTAGES OF THE COMPUTER AIDED PHONETIC PRACTICE

The whole process can be tiresome and time consuming if there are many students. For instance, in this experiment to record four students for lexical and semantic pronunciation experiment it took almost 3 days. Also the whole process still depends on the willingness of the students to participate. If the students are not willing to participate in the recording process then the effect of the whole process will fail.

RECOMMENDATIONS

From the results of this experiment it was revealed that this method is more effective and practical for the phonetic practice than lexical or semantic practice. This was shown by the fact that the recording and editing for lexical and semantic pronunciation experiment took three days while that for phonetics took one day. Due to the reason that for longer phrases both recording and editing requires more time and care, it is more tiresome thus it is not practical for daily learning practice. However, it is recommended that for those students who might be having serious pronunciation problems for words and phrases this can be a good remedial activity.

CONCLUSIONS

This research showed that the proposed computer-aided pronunciation practice is not only affordable for developing countries but also a way of motivating language learners outside the target language environment. It also showed that giving the language learner an opportunity to listen to him or herself is a helpful technique in second language learning for it helps to improve perception of the foreign sounds through self-criticism. The researcher therefore recommends that language learners can use this method of pronunciation practice with even cheap and locally accessible

resources. Instead of using expensive computers and editing softwares, a simple phone with a recorder can be used for recording and then compare the pronunciation of the recorded sounds with that of the native speakers. The main objective is for the learner to feel the difference between his or her own pronunciation with that of the native speaker.

This research had a limited period of three months thus it is not possible to measure how effective it can be if it is adopted for a long term course both as a learning and teaching technique. It is hoped that more extensive researches will be done in the field of computer aided pronunciation practice so as to effectively utilize the ever growing Information and Communication Technology (ICT) in this digital literacy 21st century.

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Schouten on the occasion of his 65th birthday Utrecht Institute of Linguistics OTS, Utrech. (pp. 103-116).

APPENDIX 1

Student Name	Age group	Period of study at the time of recording	Experiment Item
Yeukai Mumbijo	19-25	3 months	Lexical practice
Tatenda Pagiwa	19-25	3 months	Lexical practice
Sharon Sakutukwa	19-25	3 months	Lexical practice
Gladys Chipuriro	19-25	3 months	Lexical practice
Tendai Mazhindu	19-25	3 months	Phonetic practice
Carrington Takawira	19-25	3 months	Phonetic practice
Tashinga Sibanda	19-25	3 months	Phonetic practice
Nina Penina	19-25	3 months	Phonetic practice

APPENDIX 2

RECORDINGS

Recorded Chinese phonetic sounds and Participants:	
Nina Penina, Tashinga Sibanda, Carrington Takawira, Tendai Mazhindu	
Consonants	Tones
b p m f, d t n l, g k h, j q x, zh ch sh r, z x s	First tone mā Second tone má Third tone mǎ Fourth Tone mà

Recorded dialogue and Participants:	
Phrases for first pair	Phrases for Second pair
Sharon Sakutukwa, Gladys Chipuriro	Yeukai Mumbijo, Tatenda Pagiwa
A: 你是学生吗？ nǐ shì xué shēng ma ？ B: 是，我是学生。Shì, wǒ shì xué shēng. A: 你是哪个大学的学生？ nǐ shì nǎ gè dà xué de xué shēng? B: 我是津巴布韦大学的学生？ wǒ shì jīn bā bù wéi dà xué de xué shēng? A: 你的专业是什么？ nǐ de zhuān yè shì shén me? B: 我的专业是语言学，你呢？ wǒ de zhuān yè shì yǔ yán xué, nǐ ne?	A：喂你好 wèi nǐ hǎo. B： 喂， 你找谁？ wèi, nǐ zhǎo shuí? A：Tatenda 在家吗？Tatenda zài jiā ma? B：我就是 wǒ jiù shì. A： 是吗？ 我好想你。shì ma？ wǒ hǎo xiǎng nǐ. B：我也是 wǒ yě shì. A： 你什么时候来我家？ nǐ shén

A: 我的专业是汉语。 你住在哪？ wǒ de zhuān yè shì hàn yǔ. nǐ zhù zài nǎ? B: 我住在 Kuwadzana，你呢？ wǒ zhù zài Kuwadzana, nǐ ne? A: 我住在乐山 wǒ zhù zài lè shān. B: 乐山是什么？ lè shān shì shén me? A: 乐山是 Mt Pleasant。 lè shān shì Mt Pleasant. B: 知道了，谢谢。zhī dào, le xiè xiè. A：不客气 bú kè qì.	me shí hòu lái wǒ jiā? B 今天下午 jīn tiān xià wǔ. A：好吧，下午见 hǎo ba, xià wǔ jiàn. B：一会儿见。yī huì ér jiàn.

APPENDIX 3

QUESTIONNAIRE SAMPLE

COMPUTER-AIDED CHINESE LANGUAGE PHONETIC PRACTICE QUESTIONNAIRE

汉语计算机辅助的发音练习调查表

DATE 日期：_____Age 年龄:_____

INSTITUTION 机构:_____

1. What is your Chinese proficiency level? 你的汉语水平是几级？ _____

2. How long have you been studying Chinese? 你学了汉语多长时间？ _____

3. What made you did you participate in this project？ If you didn't participate would you participate in such activities next time? Why? 如果你参加了，你为什么参加了？如果你没参加，下次你会参加吗？为什么？

_____

_____

4. Did you learn something from the roles you played? Or after watching the videos did you learn something? 通过这次的汉语表演活动你学到了什么？看这些视频之后你觉得对你的汉语水平有收获吗？ _____

_____

_____

_____

5. Do you think such pronunciation practices are useful to Chinese language students? 你觉得这样的汉语发音练习对学生有用吗？ _____

_____

_____

_____

_____

6. Do you think teachers should use such pronunciation teaching methods? 你觉得老师可以用这样的方法来教汉语发音吗?_____

_____

_____

ANY OTHER COMMENTS 其他意见：

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Please don't write your name, this questionnaire is for academic purposes, whatever information you contribute, shall be used towards the development of teaching and learning of Chinese language.

Thank you for your contribution.