Assessing Teaching Stress and Intonation through Technology

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Abstract:

This study aims at assessing the impact of using technology (namely, Praat software) on teaching English stress and intonation to Salahaddin university students who are learning English as a foreign language in the English departments. The sample of the study consisted of 100 second year students who are studying English language at Salahaddin University-Erbil/Iraq. The samples of the study were assigned to experimental (use of Praat Software) and control (Practice through traditional methods)groups. Data were collected within a 6-week period via a pre-posttest designed for both groups. The findings of the study indicate that there were statistically significant differences (α=0.05) between the achievement of the experimental group and the control group in the recognition and production of English stress and intonation in favor of the experimental group which was taught via Praat software.

Keywords: stress , intonation , technology

1.Introduction

Technology has entered all walks of life including education , linguistics , and all other disciplines. Learning and teaching languages are very closely tied up with technology in contemporary life , particularly for second language and foreign language teachers and learners. At present, there are various computer applications available for all levels of language.

Technology , computer applications and softwares are seen as a viable means of teaching language by the teachers and specialized people in the field of language learning. The use of technology as a teaching tool adds more interest to the class, and students tends to learn more language skills as a result of their interest in computers.

The aim behind using technological applications and/or computer softwares is to make improvements in language teaching and learning (Pourhosein Gilakjani, 2014, Thompson, Schmidt & Stewart 2000). Computer applications and softwares help teachers and learners have access to authentic target language material in different fields (Pourhosein Gilakjani, Sabouri, & Zabihniaemran, 2015).

Pronunciation continues to attract attention of language teachers and learners due to its key roles in speech recognition and speech perception. Computer applications and softwares are being increasingly used in teaching English pronunciation to guarantee better quality and accuracy.

Unlike reading, writing, listening and general speaking fluency, teaching of stress and intonation has at times been considered a luxury in the ESL/EFL curriculum. But in recent years, stress and intonation have come to be recognized as essential components in most ESL/EFL instructional programs (Al-Shamayleh,2014). Thus,

one way of teaching stress and intonation is via technology and more particularly computer softwares. .

Using computer technology can be positively effective for teaching English pronunciation in general and supra-segmental features such as stress and intonation in particular (Breitkreutz, Derwing, & Rossiter, 2002; Burgess & Spencer, 2000; Kawai & Hirose, 2000; MacDonald, 2002). Many scholars have conducted several studies on teaching pronunciation features through using computer applications and/or softwares, including pronunciation quality (Sefero˘glu, 2005), speech rate, fluency, and liveliness (Hincks, 2005), intonation (Cauldwell, 2002; Hardison, 2004a; Kaltenboeck, 2002; Levis & Pickering, 2004), English stress timing (Coniam, 2002), pronunciation quality of individual words (Mich, Neri, & Giuliani, 2006), and intonation (Hardison, 2004). Most of these studies indicated that using technology is effective in teaching pronunciation.

2.Previous Studies:

The use of technology for improving pronunciation has been studied by many scholars such as (Butler-Pascoe & Wiburg, 2003; Eskenazi, 1999; Kim, 2006; Neri, Cucchiarini, Strik, & Boves, 2002; Walker, 2005).We are going to present some of the previous studies below especially those that are directly related to use of technology and computer softwares for teaching pronunciation:

Simoes (1996) studied the impact of computer on teaching intonation. The findings showed that the usage of computer is very effective in teaching intonation. Eskenazi (1999) pointed out that the application of computer is useful for the learning of various features of pronunciation such as stressed and unstressed words.

Hincks (2005) studied the impact of *Talk To Me* software based on ASR technology on the English pronunciation of a group of participants. The findings showed that

automatic feedback that participants received in the experimental group about the quality their pronunciation quality from *Talk To Me*–software was more effective than feedback they received in the control group from their teacher.

In addition, Kim (2006) conducted a study on *ASR* software. The subjects under scrutiny used ASR software and listened to sentences produced by the native speakers. The results of this study proved that ASR software was a useful means of teaching pronunciation to learners in situations where they do not have access to native speaker teachers

Verdugo (2006) carried out a research on the impact of ASR software on intonation. Two groups took part in this research: experimental and control group. The experimental group which used ASR software improved the quality of intonation more than the second group that did not use the software.

Lee (2008) investigated the influence of *My English Tutor* and *Issues in English* software on Taiwanese learners' pronunciation. The results of this investigation showed that these two computer software had a significant influence on improving the learners' pronunciation.

Hinks and Edlund (2009) studied the impact of ASR-based visual feedback on improving pitch. As results showed, the experimental group who used ASR technology had a higher pitch improvement than the control group who did not use it.

Hismanoglu (2012) conducted a study to examine the problems of word stress patterns. He also investigated the effect of computer pronunciation lessons and traditional pronunciation lessons on Turkish learners' accurate production of stressed syllables. The findings showed that the experimental group who used computer software for teaching pronunciation lessons outperformed the control group who used traditional methods for pronunciation instruction.

Gorgian, Hayati, and Pourkhoni (2013) examined the effect of computer software on learning prosodic features of pronunciation. There were two groups in this study. The control group received traditional teaching methods while the experimental group received CALL approach. The results showed that the group who practiced stress and intonation through CALL was more successful than those who were taught through traditional teaching methods.

While all the previous studies show that the use of technology ,computer applications and softwares is an effective way of teaching and learning English pronunciation in general, this current study is an attempt to assess teaching stress and intonation through technology (namely , using Praat software) and how effective is the use of this software on recognition and production of second year university students who are studying English as a foreign language.

3.Statement of the problem

Since it has been proved that technology is positively effective for language learning in general , there is need to continue to conducting studies on the effectiveness of using modern technology especially softwares and applications as well as its impact on the learning process. But in this study, the researchers attempt to assess teaching stress and intonation through Praat software . Here, the researchers make use of Praat software to assess teaching English stress and intonation for university students . Moreover, most students face difficulties in learning stress and intonation. Learning stress and intonation demand a lot of time and effort for practice. Students need new tools for learning stress and intonation in order to make it more interesting and encouraging.

4.Research Question

This study aims to answer the following question:

Are there any statistically significant differences (α=0.05) between the experimental group (using Praat software) and the control group (traditional method) regarding their stress and intonation achievement(recognition and production) due to the method of teaching?

5.Purpose of the study

The purpose of the study is to assess teaching stress and intonation through one of the technological softwares(Praat) of teaching second year university students who are studying English as a foreign language.

6 Significance of the study

This study may help teachers of English and educators to assess the advantages and utilize technology and computer softwares to assist or provide instruction. To the best of the researchers knowledge , the study is the first study to investigate the effect of using Praat software in assessing teaching stress and intonation for university students in Kurdistan region and the whole country.

7.Methodology and Design

The present study aims at assessing the effect technology has on improving the process of teaching English stress and intonation. Here, the researchers present the methodology and design of the current study.

7.1.Population

The population of this study consisted of 183second year students who are learning English as a foreign language at English department/college of Basic Education , Salahaddin University-Erbil/Iraq during the academic year 2016/2017.

7.2.The Sample of the Study

The sample of the study consisted of 100 second students who are studying English as a foreign language at English department. They were randomly selected for participation in the study. They were divided into two groups with fifty students in each one. Group one was the experimental group, while group two was the control group. Students in the two selected groups were subjected to a pre-test to assess their general language proficiency in the light of their abilities to apply stress and intonation on single words , sentences and intonation patterns correctly. The experimental group was to learn and practice word stress , sentence stress and intonation patterns of selected words, sentences through the use of technology (Praat software). Whereas, the control group was to learn and practice the same words, sentences through the application of the traditional method (using teacher as model) in the classroom.

7.3 Instruments of the Study

The instruments of the study consisted of a pretest and a post test, and both of them included two main levels: level (1) involves the application of stress upon individual words and sentences, while level (2) entails the application of intonation patterns upon sentences. While the pretest included the word stress and sentence stress and intonation patterns of selected words and sentences which were taken from the listening content of the demanded textbook “Phonetics and Phonology: A practical Course” (Roach,1983), the post-test included words and sentences which the two groups (the control and the experimental) listened to by following the two different teaching methods (the traditional method vs. using Praat software).

7.4 Research Design and Statistical Analysis

The research design was experimental for second year students who are studying English as a foreign language at English department , college of Basic Education University of Salahaddin-Erbil/Iraq for the academic year 2016-2017.

The study included an independent variable (the teaching method), which consists of two levels: a. Teaching stress and intonation with the help of the computer software called Praat. b. Teaching stress and intonation through the traditional method in the classroom. Also, the study included one dependent variable which is students' achievement in the recognition and production of stress and intonation (scores on the posttest). For answering the research question, a preliminary t-test was conducted to test the quality of the two groups (the control and the experimental group). Also, another t-test was carried out to measure the gain scores of both groups on the post test. Then , the data were statically treated to get the mean and standard deviation.

7.5 Procedures

The experiment lasted six weeks (January-February 2017) of the academic year 2016/2017. A pre-test was given to the second year students in order to see their level before the treatment. Throughout the six weeks, the experimental group practiced the stress and intonation of certain words and sentences using Praat program on computers. The control group, however, was taught the same words and sentences following the traditional method , the use of teacher as a model. By the end of the six weeks, all students were tested again at the end of the experiment and means of the post-test were calculated.

7.6 Validity and Reliability of the Study

Both tests were shown to university professors, English language teachers who taught phonetics and phonology to evaluate these tests and suggest any improvements. They were asked to validate the content of the test concerning its instructions and suitability based on the objectives of the research. The jury comments and suggestions were studied carefully, and the necessary modifications were done accordingly.

The test reliability was obtained through the split-half method on a group of 50 students, who were randomly chosen from the population of the study. The reliability coefficients of the tests were calculated (0.95) using Cronbach-Alpha for both the pretest and the posttest.

8. Discussion and Findings of the Study

The aim of this study is to investigate the effect of using technology (using Praat software) in assessing teaching English stress and intonation for students who are learning English as a foreign language. This study confirms that the students who were taught using Praat show better achievement (recognition and production) than those taught using the traditional method. The data were collected through a pretest –treatment- posttest design for equivalent groups. The study was tested at the level of significance where $\alpha=0.05$. Therefore, table (1) presents the descriptive statistics of the experimental and control groups.

Table (1) Means and standard deviation of the achievement of the two groups on the pretest and the posttest

Groups		***Pre-test***	***Post-test***
Control	*Mean*	*72.00*	*73.20*
	SD	*16.45*	*15.55*
	Total	*100*	*100*
Experimental	*Mean*	*74.20*	*86.05*
	SD	*15.60*	*12.04*
	Total	*100*	*100*

An independent samples t-test was carried out to find out whether there is a statistically difference between the achievements of the two groups on the pretest. Table (2) displays the results concluded from this test.

Table (2) Results of the t-test of the means of achievement of the two groups on the pretest

	Groups	Total	Means	SD	T	df	Sig.
Pretest	Control	100	72.00	16.85	-	8	0.304
	Experimental	100	76.25	15.94	1.06		

As it can be observed from table (2) , there are no statistically significant difference at α=0.05 between the achievement of both groups on the pretest. So, the students of both groups were almost at the same level according to the results of the pretest.

In order to find out whether there is a statistically significant difference between the two groups' achievements on the post-test , another independent samples t-test was conducted. Table (3) displays the results:

Table (3) Results of the t-test of the means of achievement of the two groups on the post test

	Groups	Total	Means	SD	T	df	Sig.
Posttest	Control	100	74.00	15.65	-	36	0.006
	Experimental	100	88.25	11.75	2.94		

As it can be observed from table (3) , there are statistically significant difference at α=0.05 between the achievement of both groups on the posttest. This difference proves the hypothesis put forward at the beginning that using Praat program for teaching English stress and intonation for second year university students has a more positive effect than following the traditional method of teaching.

Conclusions:

It has been concluded that CALL approaches can be used for teaching pronunciation and especially supera-segmental features such as stress and intonation and computerized learning of stress and intonation was more effective and compared to the students in the control group, students who learned these patterns in the experimental group were more successful in conversation and interaction.

The results of this study provide empirical evidence that using Praat software can help language learners more accurately recognize and produce stress and intonation.

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پوختە:

ئەم لێکۆلینەوەی هەوڵێکە بۆ هەڵسەنگاندنی کاریگەری بەکارهێنانی پرۆگرامی پرات لەسەر وتنەوەی هێز و ئاوازە لە زمانی ئینگلیزیدا بۆ قوتابیانی زانکۆی سەڵاحەدین-هەولێر. سامپلی لێکۆڵینەوەکە ١٠٠قوتابی قۆناغی دووەمی بەشی زمانی ئینگلیزی کۆلێژی پەروەردەی بنەڕەت بوون بۆ ساڵی خوێندنی ٢٠١٦-٢٠١٧. ئەو قوتابیانە دابەشکران بە سەر دوو گروپی هاوشێوە بە شێوەیەکی ڕەمەکی : گروپی یەکەم (گروپی کۆنترۆل ٥٠ قوتابی) و گروپی دووەم (گروپی ئەزموونی ٥٠ قوتابی). لە گروپی کۆنترۆڵکراودا بابەتەکانی هێز و ئاوازە بە شێوەی وانەوتنەوەی باو (ئاسایی) دەوترانەوە کە مامۆستا خۆی وەک نموونەی زمانەکە بەکاردەهێنا بەڵام لە گروپی ئەزموونیدا ئەو بابەتانە بە سوود وەرگرتن لە تەکنەلۆجیا (پرۆگرامی پرات) دەوترانەوە. داتای لێکۆڵینەوەکە لە ماوەی ٦ هەفتەدا کۆکرایەوە لە ڕێگەی تاقیکردنەوەی پێشیی و پاشیی. ئەنجامی لێکۆڵینەوەکە دەریخست کە جیاوازییەکی ئاماریی گرنگ هەیە لە نێوان دەستکەوتی (ناسینەوە و بەرهەمهێنان)ی قوتابیانی هەردوو گروپەکە لە بەرژەوەندی گروپی ئەزموونی. بۆیە لێکۆڵەرەکان ڕاسپاردە دەکەن بۆ وتنەوەی بابەتی هێز و ئاوازە سوود لەو پرۆگرامە وەربگیرێت لە زانکۆکاندا.

ملخص:

تهدف البحث الى تقييم اثر استخدام برنامج برات على تدريس النبر و النغمة في اللغة النكليزية لطلاب جامعة صلاح الدين-اربيل. تتضمن نموذج البحث 100 طالب و طالبة في المرحلة الثانية في قسم اللغة النكليزية في كلية التربية الاساس.تمت توزيع الطلبة على مجموعتين متساوتين بصورة عشوائية و كل مجموعة تتكون من 50 طالب و طالبة. المجموعة الاولى هي المجموعة الضابطة حيث يكون تدريس بصورة تقليدية و المدرس يستخم نفسه كنموذج. اما المجموعة الثانية فهي المجموعة التجريبية حيث يتم ترديس النبر و النغمة عن طريق استخدام برنامج برات. تم جمع المعلومات خلال 6 اسابيع عن طريق الاختبار القبلي و البعدي.

اظهرت النتائج وجود اختلاف ذو دلالة احصائية بين تحصيل المجموعتين لصالح المجموعة التجريبية. و قد تبين بأن لبرنامج برات تأثير ايجابي على تحصيل الطلاب في تدريس و تعلم النبر و النغمة في اللغة الانكليزية.