



Pre-Service Teachers' Academic Achievement and Attitude Towards Using Tablet PC in English Pronunciation

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Abstract:

The problem underlying the present paper was to determine the effects of courseware in tablet PC-based instruction method in pronunciation skills of pre-service teachers in the college of Education at Kuwait University and their attitudes towards using tablet PC during this experience. After completing courseware work pre-service teachers, in both the experimental and the control groups, took part in an achievement test in pronunciation skills and measured by an attitude scale to determine the attitudinal impact of using tablet PC as an instructional tool. Findings revealed an improvement in pronunciation skills and in the development of a positive attitude in favor of tablet PC-based instruction method. Conclusions and final recommendations were forwarded at the end.

Introduction

Observations in pronunciation pedagogy in Kuwait University suggest that the students have limited pronunciation skills that may affect their learning of English as a foreign language. Both pre-service and in-service teachers have observed a similar situation in primary and middle schools, which means that problems with pronunciation

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may become fossilized if not well taken care of. The literature on pronunciation instruction in TEFL (Teaching English as a Foreign Language) indicates that poor pronunciation skills induced by the long tradition of a Grammar-Translation teaching method may undermine learners' self-confidence, restrict social interactions, and negatively influence estimations of a speaker's credibility in spoken language situations (Brown, 2006; Fitriyanti & Soraya, 2011; Purwarno, 2006; Rayan, 2009).

However, the current move towards communicative approaches to teaching English has arisen more interest in the role that pronunciation plays in building the learner's overall communicative competence in language (Andrewes, 2005; Belchamber, 2007; Richards, 2006). Consequently, teaching pronunciation is a focus in TEFL teacher preparation programs in the College of Education at Kuwait University, especially in core subjects as Phonetics and Phonology, Conversation and Spoken English. Nevertheless, Al-Qudah (2012) has emphasised that pronunciation instruction is likely to be linked to the instructional method being used and the assistive educational technology employed.

Therefore, educators and practitioner teachers have been looking for panacea methods whereby to engender and enable pedagogical enhancements to teaching and learning through the use of technologies of significance in this regard arise tablet PC applications to teaching pronunciation (Mang & Wardley, 2012). In general, research reporting on tablet PC-based instruction experiments bore out interesting findings (Anderson, Schwager & Kerns, 2006; Chen, 2013; El-Gayar, Moran & Hawkes, 2011; Karsenti & Fievez 2013; Koile & Singer, 2006). Most of these studies suggest that education via tablet PC provides an active learning environment, enhances students' performance, develops and fosters positive attitudes towards learning, sustains interaction and communication between learners and teachers in the classroom, and could be adapted to all learning styles and levels of instruction.

Furthermore, there has been more ongoing, consecutive research tapping into the effectiveness of tablet PC-based instruction in a variety of instructional settings; most of it bore interesting, contra-

dictory findings. For instance, Minoo, Mohammad & Lari (2012) indicated that tablet PC-enhanced learning environments as in instructional laboratories led to enhanced learning. Similar findings were attained by the experimental study of Brand & Kinash (2010) within a computer-assisted-instruction programme, and so was the case with Eichenlaub, Gabel, Jakubek, McCarthy & Wang (2011) who studied the effects of tablet PC instruction within a large lecture classroom.

What is interesting is that not all studies reported significant differences between tablet PC-based and traditional styles of instruction (Ozok, Benson, Chakraborty & Norcio, 2008). However, most of the studies on the effectiveness of tablet PC-assisted instruction indicated that with such tablet PC-based delivery systems, there was more opportunity to optimize the advantages and minimize the disadvantages of traditional methods of teaching and learning, which adds up to the overall effectiveness of using tablet PC in instructional designs.

Albeit, on a contradictory note, Ali (2012) reviewing a variety of research on the effectiveness of tablet PC-based instruction suggests further, more interdisciplinary collaborative research, that includes follow-up studies, for validation of tablet PC-based instruction as a superior or optimal teaching and learning experience. To him, technologically-assisted instruction must be implemented and critiqued in a variety of settings, at different levels of technological integration in different disciplines of knowledge. In addition, tablet PC provide a different interface than traditional computers, they offer unique possibilities for graphics applications, games, and other programs. Also because of their small form factor, they are extremely portable and can be easily stowed in a backpack or a briefcase (McMahon, 2013). However, Many tablets now support multi-touch input, which allows users to perform gestures with multiple fingers, such as pinching an image to zoom out, or spreading their fingers apart to zoom in.

Since tablets do not use a traditional keyboard and mouse as their primary forms of input, the user interface of a tablet is different than a

typical laptop. For example, instead of double-clicking to open a program, most applications open with a single tap. Instead of clicking on a scroll bar to scroll through a window, most tablet applications allow you to swipe up and down anywhere within a window to scroll through the content(Whitmore, 2013).

Research on Tablet PC

Previous researches on tablet PC-based instruction indicate that when using a variety of hardware and software ranging from low-level (Bjerede & Bondi, 2012) to high-level (Rossing, Miller, et al., 2012) configurations of technology, there may be enhancements in learning outcomes. A review of studies in this context revealed that tablet PC was manipulated in technological integration to compare traditional delivery methods with tablet PC-based delivery methods, with most of which revealing enhanced achievements (Rikala, Vesisenaho & Myllari, 2013). Most of the studies in this vein, however, emphasised the development and increase of written communication and pronunciation skills using synchronous and £ or asynchronous communication tools. As could be deduced from this multitude of researches, it is recognisable that the genre of writing promoted by the use of computer-assisted instruction and the use of tablet PC is a very akin to oral communication in tone, register, and spontaneity.

Nevertheless, the language output in the use of tablet PC is printed and produced using the keyboard rather than orally, with no evidence of accuracy in pronunciation, intonation, prominence, and stress. The most widely acclaimed benefits of tablet PC and the use of multimedia apps in teaching pronunciation are that they allow: 1. more equal and increased participation than in regular face-to-face classroom-based activities (Cochrane, Narayan & Oldfield, 2013; Curtin & Tarnow, 2013; Dhir, Gahwaji, et al. 2013; Henderson & Yeow, 2012; Nooriafshar, 2012); 2. positive attitudes (Kondo, Ishikawa, Smith, Sakamoto, Shimomura & Wada, 2012); 3. greater student empowerment with decreased teacher control and dominance (Balanskat, 2013); and 4. a wider variety of discourse functions and interactional modifications.

Other advantages of tablet PC includes increased opportunities for individualized instruction, leading to more attention to diverse students' needs, improves understanding of topics, providing resources for different learning activities, help develop pupils' digital skills, improve comprehension (through images, simulations and video), encourage creativity (by helping to find and organise information and discuss ideas), and increase pupils' involvement and motivation (Kiraz & Ozdemir, 2006). One of the most important studies that runs out by (Phys.org, 2013) and focuses on the impact of using tablet PC for classroom learning improvement highlights that 87% of teachers claim that tablets contribute to the improvement of pupils' learning in general and over 90% state that they facilitate independent learning (as they provide interaction and tools).

Study Problem

This study seeks to verify the effectiveness of a tablet PC-based instructional programme in teaching pronunciation for sophomores in the English department, College of Education, Kuwait University on the premise that pronunciation skills are poor in students of English in the College of Education at Kuwait University, assuming participant observations of the researcher. This study is to further demonstrate that the reported outcomes of tablet PC-based instruction literature are positive, with long-term effects on students' attitudes and performance in a different setting in order to confidently commit the hardware, software and humanware required for the transition from traditional modes of instruction to tablet PC-based teaching and learning. As well, designing successful pronunciation tablet PC-based software may help in enhancing an important skill in language acquisition.

Study Questions

Main research questions of the study are:

- 1 - Are there any significant differences exist between pre- service teachers' academic achievement in English pronunciation who used tablet PC compared to their counterparts who did not?

- 2 - Are there any significant differences exist between pre-service teachers' attitude towards English pronunciation who used tablet PC compared to their counterparts who did not?

Objectives

This study aims at:

- 1 - Investigating the effectiveness of tablet PC-based instruction into pronunciation skills in English students at the College of Education, Kuwait University.
- 2 - Seeking to tap into students' attitudes towards pronunciation upon training on tablet PC-based instruction.
- 3 - Presenting classroom settings with innovative tablet PC' technologies in order to promote the learning process.
- 4 - Enhancing pre-service teachers' tablet PC skills to be ready for their future schools.

Study Importance

The current study gains its importance basically as it is beneficial and useful to the following destinations:

- Research Field: the current study focuses on one of the vital mechanisms for the educational development and progress. As it was proved in many scientific research that using new trends of technology can play an important role in improving educational outcomes, this study comes to search on one of the most important technology aspects which is tablet PC.
- Decision makers at the Ministry of Education in Kuwait and similar countries are encouraged to implement new technologies.
- Faculties of Education and their members whom major is English teaching and other subjects can learn new methods to empower their teaching.
- Pre and In-service English teachers, especially who are not native speakers, can improve their English.

Study Terms

- Tablet PC:

Editors of PC Magazine from Wikipedia (2010) define tablet PC as:

"Tablet PCs or simply tablets are mobile computer with display, circuitry and battery in a single unit, they are equipped with sensors, including cameras, microphone, accelerometer and touchscreen, with finger or stylus gestures replacing computer mouse and keyboard, also they may include physical buttons to control basic features. An on-screen, pop-up virtual keyboard is usually used for typing". (http://en.wikipedia.org/wiki/Tablet_computer).

In the same vein, tablet PC can be also defined by Hursh (2012) as:

"A portable computing device which looks much like a detached screen from a conventional notebook computer, or perhaps a hand-held computer that's been scaled up".

- Pre- Service Teachers:

They are defined by Lopes and Tormenta (2010) as college students involved in a school-based field experience, and under the supervision of a cooperating teacher, they gradually take on more classroom management and instructional responsibilities. Further, this term as Tokmak (2011) mentioned to students who are presently enrolled in a teacher education program at the undergraduate level and who have never taught in a public or private school as certified teachers.

- Academic Achievement:

Academic achievement refers to a student's success in meeting short or long-term goals in education, and in the big picture it means completing high school or earning a college degree (DeFreitas & Rinn, 2013). Academic achievement may also as Lopata, Wallace and Finn (2005) indicates that it refers to a person's strong performance in a given academic arena. Moreover, it represents performance outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college, and university (Steinmayr, Meibner, Weidinger & Wirthwein, 2010).

- Attitude:

An attitude as defined by Abu Sharbain and Tan (2012) means predisposition or a tendency to respond positively or negatively towards a certain idea, object, person, or situation. It influences an individual's choice of action, and responses to challenges, incentives, and rewards. Attitude also refers to "affective, cognitive, and behavioral components that correspond, respectively, to one's evaluations of, knowledge of, and predisposition to act toward the object of the attitude, El-ashry, 2009, p.19)".

Methodology

- Population and Sample:

The total number of target population was (267) of pre- service English teachers. Subjects of the study included (120) which constitute (44.9%) of the target population. They were randomly selected as clustered of classes and randomly assigned to both the experimental and the control group. Previous achievement tests as well as observations of the students' performance in Phonetics and Conversation indicated that the population of the study are normally distributed and there were no big differences between the subjects in their pronunciation skills. In order to check that the groups are not different from each other and to ensure that the variations due to the treatments and were not affected by extraneous factors, Levene's test of variances was used, $p\text{-value} = .903 > .05$, which means that the populations of the two groups, control and experimental, were not statically different from each other. This test satisfied the ANOVA assumption, which is used in the analysis of result section.

- Tools:

1 - Pronunciation Multimedia App(PronunApp):

The programme used is an app about PronunApp' which is designed for beginner to intermediate level students to provide necessary and basic tools to improve English pronunciation skills, manipulating English pronunciation training, listening pronunciation exercises, photos and graphics, practice words and sentences and interactive and exiting pronunciation games. The app was judged by a jury of experts in Kuwait University for validation purposes.

2 - Digital Device (Tablet PC):

Students were allowed to use any tablet they prefer, almost all of them used iPad, one of them used Samsung tab. PronunApp was available in both Apple and Android systems. The students were asked to download the app on their devices at the beginning of the study.

- Instruments:

1 - Scale of Attitudes towards Tablets Instruction (SATI):

The scale consists of 24-item instrument that assesses students' views towards tablets technology when this is used for educational purposes. Five dimensions of SATI were included: students' views towards computer interaction (INTERACT); students' degree of involvement in the tablet PC' activity (INVOLVE); students' views on individualized instruction (INDIVID); students' perceptions toward self-paced instruction (SELPAC); students' level of anxiety when working with tablet PC (IVDANX). Each item was answered on a 5-point Likert scale. The response options were 5 (Very True), 4 (Somewhat True), 3 (Neutral), 2 (Somewhat Not True) and 1 (Not At All True).

A jury of experts in educational technology in Kuwait University validated the SAMI and it was pilot-studied for reliability. The reliability coefficient of (0.78) was calculated using test-retest method.

2 - Academic Achievement Test (AAT):

An achievement test was designed for the purpose of the current study and consisted of (15) multi-choice items. The total possible score of the test was (20) marks. Faculty members for the department of curriculum and teaching methods, face validated the instrument. A pilot study was carried out on (10) students whose major is English teaching and out of the study sample. The reliability of the test was calculated using Alpha Cronbach correlation coefficient and formed to be equal to ($= .87$), which indicated a reliable test.

- Treatment

The duration of the treatment continued to (8) weeks, sequenced in (16) sessions. Subjects of the study were (60) pre-service teachers equally assigned to their respective groups by random assignment, with no consideration to extraneous factors such as gender and ethnicity,

which have been equated; all are Kuwaiti males, with similar socio-economic backgrounds and similar attainment rates. The same content studied in PronunApp was extracted to be provided in a lecture-based format for the traditional control group.

Results

After collecting and tabulating the data into an SPSS software, a descriptive statistics has been executed. Table (1) describes the sample of the study.

Table 1
Means and Standard Deviations for the Experimental and the Control Groups across Academic Achievement and Attitude

Groups	N	Academic Achievement		Attitude	
		Mean	SD	Mean	SD
Experimental	59	18.25	1.24	19.34	1.28
Control	60	17.33	1.31	16.58	1.31

From table (1), the experimental group, which consisted of (59) participants, had higher mean scores than the control group, which consisted of (60) participants, on academic achievement as well as attitude. In addition, the control group had higher standard deviation than the experimental group in both academic achievement and attitude. This study sought to investigate the effects of tablet PC-based instruction on pre-service teachers' pronunciation skills and their attitudes towards pronunciation in a tablet PC-based delivery environment. The type of data in this study is post-de facto. The experiment was commenced and in the end, the instruments were administered to the subjects in the experimental and control groups.

In answering the research question "Are there any significant differences exist between pre- service teachers' academic achievement in English pronunciation who used tablet PC compared to their counterparts who did not", the following table shows the results produced by an achievement test for both groups on posttesting manipulating an ANOVA test.

Table 2
***Analysis of Variance for mean differences between the treatment group
 and the control group on academic achievement***

	df	SS	MS	F	Sig.
Between Groups	1	13.23	13.23	23.42***	.05
Within Groups	59	237.35	0.51		
Total	60	250.58			

Note.*** $p > .001$.

The results from the table above indicate that there is a positive mean difference between the treatment group and the control group in the development of their pronunciation skills. A tablet PC-based pronunciation training software outperformed the control group with statistically significant differences ($p > .001$).

As shown in table (2), the ANOVA test for the differences between treatment and control group mean scores on the performance test demonstrates the means for the experimental group mean, meeting the level of statistical significance where $F = 23.42$, $p > .001$, hence a positive mean difference found in favour of the tablet PC-based instruction into pronunciation. In regard to the research question "Are there any significant differences exist between pre-service teachers' attitude towards English pronunciation who used tablet PC compared to their counterparts who did not", the attitudes towards English pronunciation development tablet PC' software were also investigated. Using data from SATI, the following table sums up the results:

Table 3
***Analysis of Variance for mean differences between the treatment group
 and the control group on attitudes***

	Df	SS	MS	F	Sig.
Between Groups	1	20.22	20.24	20.00***	.001
Within Groups	59	405.76	1.32		
Total	60	525.98			

Note *** $p > .001$.

The scale used for measuring attitudes towards the tablet-PC' software in pronunciation (Pronunciation P1), SATI, served to give insights into the specific benefits of the treatment programme. The table gives testimony supporting the notion that tablet PC-based instruction bore positive effects on the students' attitudes towards the English Pronunciation P1 software and its use in the instructional design on all five dimensions of the scale. As shown in table (3), the mean for the treatment performance was 20.24, while the control group produced a 1.32. The variance meets the standard for statistical significance where $F = 20.00$, $p > .0001$, thus producing positive results as to the effects of the treatment tablet PC-based delivery pronunciation programme.

Discussion

As anticipated, there were statistically significant differences in gain scores between pre-service teachers' from tablet PC-based instruction group and comparison group. Statistical tests indicated that project and comparison pre-service teachers' base performance scores and attitudes scores.

However, the researchers' observations together with performance assessment data, and attitudes scale data provide the three sources of evidence that the tablet PC-based instruction into pronunciation is successful in helping students learn the "new basics" and pronunciation skills necessary for the development of good listening and speaking skills in English that are at the core of the English department's vision for students. Participant observation had it that students are more motivated, involved, interactive in class and engaged in classroom activities.

They also serve students taking greater responsibility for their own learning and collaborating more effectively with their peers. The performance assessment showed that students' listening and speaking skills were significantly greater than the matched comparison group and that there was a trend towards higher scores in content mastery as well as on individual pronunciation skill areas. The use of tablet PC' software with varying activities in aural-oral input production and

reception helped in providing more paced, individualised drill and practice. This is consistent with what(Andrewes, 2005; Belchamber, 2007; Richards, 2006) propose as a framework that supports a communicative-cognitive approach to teaching pronunciation. As digital media are used, students typically spend more time reviewing and revising the content of their learning lessons and develop a greater manipulation of their aural-oral skills. As well, using a software that establishes aural-oral communication goals and objectives that identify pronunciation needs as well as speech functions and the contexts in which they might occur (Kiraz&Ozdemir 2006; Mang&Wardley, 2012) is much helpful considering individualised, paced instruction, using more drill and practice, and even reproducing recordings of pre-service teachers' voices for self-evaluation.

The activities in aural and oral training in the tablet PC' software manipulated realistic segments and pieces of real-life discourse aiming for functional intelligibility, functional communicability, and enhanced self-confidence in use which have been employed in the training software and in compatibility with previous research on the significance of these training foci (Anderson, Schwager & Kerns, 2006; Chen, 2013; El-Gayar, Moran & Hawkes, 2011; Karsenti & Fievez 2013; Koile & Singer, 2006). Furthermore, previous research also indicated that the learner's attitudinal factors play a significant role in pronunciation acquisition (Bjerede & Bondi, 2012; Kondo, Ishikawa, Smith, Sakamoto, Shimomura & Wada, 2012; Rossing, Miller, et al. 2012).

This may explain the relationship between enhanced pronunciation performance and attitudes towards pronunciation teaching in a tablet PC-based learning environment. This is consistent with previous observations in the literature that nonlinguistic factors related to an individual's personality and learning goals can influence achievement in pronunciation (Minoo, Mohammad &Lari; 2012; Rikala, Vesise-naho&Myllari, 2013).

Conclusions and Recommendations

The tablets instructional experience made a positive difference in the skills and attitudes of pre-service teachers in this study. However,

without continual reinforcement of the use of technology, skill level will not be maintained. Yet, time competes with an already overwhelming course load in which students are learning theory, practice, and in pronunciation, phonetics and conversational English.

Insights from the analysis of the results from this study leads to the following recommendations. The courseware empowered by tablet PC-based delivery methods should be placed during the first years of the professional programme for student teachers to allow maximum use of technology during the next years. Once students have taken the courseware, there should be continued emphasis placed on the importance of technology by requiring its use in all method and content courses. This continued practice would help sustain pre-service teachers' knowledge and interest in becoming proficient in using technology in the classroom.

Finally, professors have an influence on students in the English department as they teach best practices in teaching and learning. Therefore, it is imperative that TEFL professors are appropriately trained in the use of technology and be required and equipped to use technology in their daily teaching. This modelling will help keep technology in the forefront of the students learning experience.

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