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ENHANCING PHONETIC COMPETENCE THROUGH BLENDED LEARNING: AN ESL PERSPECTIVE

Asad Ullah
Master in Applied Linguistics and TESOL, University of Portsmouth, UK
Asadktk990@gmail.com
Maryam Hassan
MS in Applied Linguistics, National University of Computer & Emerging Sciences, Lahore
maryambangash07@gmail.com
Uzma Atif Jafri
Assistant Professor of English and Communication Studies
Iqra University , Karachi
uzma.atif@iqra.edu.pk

Abstract
The study investigates the effectiveness of blended learning in enhancing phonetic competence among English as a Second Language (ESL) learners. Phonetic competence, which includes pronunciation accuracy, stress, intonation, and fluency, is essential for effective communication but is often neglected in traditional language instruction. To address this gap, the study employed a mixed-methods approach using a quasi-experimental design with control and experimental groups. The data were collected from 50 ESL intermediate-level learners at an English Language Academy in Peshawar through pre-tests, post-tests, questionnaires, and semi-structured interviews. The results revealed that learners exposed to blended learning significantly outperformed those receiving traditional instruction, demonstrating notable improvement in pronunciation and overall intelligibility. Furthermore, learners expressed positive attitudes toward the use of digital tools, highlighting increased motivation, engagement, and opportunities for autonomous learning. The findings suggest that integrating technology with face-to-face instruction provides a flexible and effective framework for developing phonetic competence in ESL contexts. The study contributes to the growing body of research supporting blended learning as a practical approach to improving pronunciation skills and communicative competence.

Keywords: Blended Learning, Phonetic Competence, ESL Learners, Pronunciation, Language Teaching

1. Introduction

The phonetic competence is essential for English language teachers and their students. It helps students generate intelligible speech and communicate effectively. ESL (English as a Second Language) students usually find that, when trying to pronounce words, they encounter many problems with sounds that are not present in their first language due to differences in phonology. These problems may result in misunderstandings when communicating, or may reduce the confidence of students in their ability to communicate (Derwing and Munro, 2005). Furthermore, grammar and vocabulary have received a greater emphasis than pronunciation as students move toward becoming communicatively competent (Gilakjani, 2016).

As technology has quickly become an integrated part of education, blended learning is seen as a new and exciting way to teach, using face-to-face time with students as well as digital tools such as computers and the internet. Blended learning provides students with the opportunity to learn at their own pace and experience an array of language input. All of these factors contribute to improving students' phonetic abilities (Graham, 2013). When using multimedia, including audio recordings, software for analysing speech and interactive exercises, students will have the opportunity to practice their pronunciation outside of the classroom and receive feedback almost immediately (McCarthy, 2010).

Furthermore, learner autonomy and motivation are key in any blended learning setting to help students master phonetic characteristics like stress, intonation, and articulation (Hrastinski,

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2019). The effective blended instructional method blends traditional teaching with technology to provide learners with an engaging and successful learning experience while meeting the needs of each student individually. This is especially important for ESL students as they must have access to multiple opportunities to be exposed to and practice phonological patterns in order to internalize them (Levis, 2018).

Therefore, the use of blended learning to improve phonetic competence is a major development in ESL education. It serves as a bridge between theoretical learning and practical learning by providing learners with the tools they need to communicate effectively in everyday settings. The objective of this research is to determine the most effective methods for using blended learning to enhance the phonetic competence of ESL learners and, in doing so, to assist in developing effective pedagogy and improved learning outcomes for language learners.

1.1 Research Objectives

1. To examine the effectiveness of blended learning in improving phonetic competence among ESL learners.
2. To explore the role of digital tools and multimedia resources in enhancing learners' pronunciation skills.
3. To investigate learners' perceptions and attitudes toward blended learning in phonetic instruction.

1.2 Research Questions

1. How does blended learning influence the phonetic competence of ESL learners?
2. What role do digital tools and online resources play in improving pronunciation skills?
3. What are ESL learners' perceptions and attitudes toward blended learning in phonetic instruction?

1.3 Significance of the Research

This research adds to the body of knowledge on various English teaching methodologies, particularly English as a Second Language. The results will provide ESL educators with valuable information regarding effective means for combining technology with traditional teaching methods in order to improve their second-language learners' pronunciation skills as well as their overall communicative competence in English. Additionally, the results of this study will offer curriculum developers new evidence of the need to include digital tools and interactive resources within their phonetics curriculum. For the learner, this study promotes the creation of flexible, autonomous and enjoyable ways to learn, which will ultimately create improvements in their pronunciation, confidence and ability to communicate in English in real-world settings.

2. Literature Review

The first language of English Language Learners(ELL) can pose challenges for them when trying to articulate spoken English clearly. ELL students continue to struggle with articulation due to first language pronunciation interference and limited opportunities to practice or be exposed to authentic English phonology (Derwing and Munro, 2005; Munro and Derwing, 2011). Earlier research emphasized that accurate pronunciation requires teaching both segmental and suprasegmental features. In particular, correct stress, rhythm, and intonation are integral parts of good communication (Celce-Murcia et al., 2010; Gilbert, 2008). In spite of how important pronunciation is in providing comprehensible speech, instruction on pronunciation has often been at the periphery of ESL classes, and has typically received less emphasis than grammar and vocabulary (Levis, 2005; Baker, 2014).

Blended Learning, as an emerging educational method, is a combination of traditional face-to-face instruction with the addition of an unspecified amount of online and/or digital learning materials and technologies. Some researchers believe that blended learning provides a flexible, learner-centered instructional environment, which enhances learner engagement and develops

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a learner's skill (Graham, 2013; Garrison & Kanuka, 2004). A blended learning approach to teaching pronunciation provides ELLs with access to a variety of multimedia resources: Audio models, visual articulation diagrams, and/or speech recognition software will have a dramatic impact on improving a learner's phonetic awareness and production (Pennington, 1999; Hardison, 2004).

Furthermore, technology-mediated environments allow learners to practice repeatedly and receive immediate feedback, which is necessary for developing their phonetic competency. New findings provide further support for blended approaches as effective in developing accurate pronunciation and fluent speech. In particular, a systematic review of existing research has shown that learners' ability to discriminate phonemes and speak fluently has been improved when classroom instruction has been combined with technology-enhanced blended instruction. Similarly, several studies demonstrate that learners who engage in web-assisted phonetics instruction through CALL and MALL benefit from increased autonomy and individualized opportunities to practice their language skills. Both blended and web-assisted pronunciation instruction provide learners with the opportunity to develop their pronunciation skills while fostering independence and motivation to learn (Chapelle, 2001; Stockwell, 2012).

While learner perceptions and attitudes play an important role in determining how successful learners are in blended learning environments, studies show that ESL learners report generally positive perceptions of blended pronunciation instruction compared to traditional methods of instruction, with increased engagement and satisfaction reported by learners who participated in blended pronunciation instruction. Furthermore, many ESL learners appreciate having the opportunity to set their own pace of learning and access resources outside of the classroom, which contributes to their increased confidence in using the target language and their ability to self-regulate their own learning (Hrastinski, 2019; Lai & Kritsonis, 2006). Finally, research examining learners' perceptions indicates that many learners struggle with pronunciation because of their awareness of and strategies used to address their difficulties, which supports the need for pedagogical approaches that address both cognitive and affective issues.

The technology revolutionized pronunciation instruction further with a combination of new technologies as well as other forms of technology, such as artificial intelligence, via feedback systems driven by artificial intelligence to provide instant corrections to instructional methods and to provide individualised learning opportunities that create measurable outcomes for improvement of spoken language and accuracy of pronunciation through measurement of improved pronunciation and degree of achievement in spoken language. Additionally, evidence-based pedagogy using corpus methodology provides data-driven explanations or descriptions of real-life language use so learners can create more accurate phonetic patterns (Ma et al ., 2024), leading to learner innovation through constructivist theory by promoting hands-on involvement and authentic interaction between learners and their peers or their teachers (Vygotsky, 1978; Piaget, 1970).

The success of blended learning through instructional technology and the successful application of blended learning in pronunciation instructional methods is very dependent on the quality and availability of professional teacher education opportunities and pedagogical knowledge, research shows that without appropriate teacher training in technology integration to enhance their instructional methods (i.e. using appropriate technology plus traditional methodologies) pedagogical alignment has a significant impact on the ability to achieve the desired learning outcomes of instructional technology that are achieved through blended-learning in pronunciation (Koehler & Mishra, 2009; Wang et al., 2010).

In general, the literature indicates that blended language learning creates a rich, effective model for developing ESL learners' phonetic abilities by incorporating the benefits of both traditional language instruction and digital technology (i.e., providing ESL learners with more practice

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exposure and feedback). Successful implementation of blended learning models may also be dependent on external variables such as learner motivation, teacher ability and familiarity with the technology, and the technological infrastructure available to support blended learning. Therefore, more research is required to identify how to optimize blended language learning to meet the diverse needs of language learners and improve their pronunciation outcomes in various ESL contexts.

3. Research Methodology

3.1 Research Design

The current study utilizes a mixed-methods approach in order to achieve an understanding of the effectiveness of blended learning on improving the phonetic competence of ESL students at an English Language Academy in Peshawar. The combination of quantitative and qualitative methods helps to provide a more complete picture of how learners have improved their pronunciation in a measurable sense, as well as providing insight into how learners perceive the value (or lack thereof) of the educational experience. The quantitative method will focus on the learners' phonetic performance through direct assessment of the learners' pronunciation, and the qualitative method will provide additional understanding of learners' experiences in relation to their attitude toward the learning experience.

3.2 Research Approach and Experimental Design

This study used a quasi-experimental design to determine the effectiveness of the blended learning approach on improving phonetic competence through the administration of both an experimental group and a control group. Both groups were administered a pre-test and a post-test assessment of phonetic competence, which included measures of pronunciation accuracy, stress, intonation and intelligibility. The post-test scores were then compared to the pre-test scores of both groups in order to evaluate the results of the intervention.

3.3 Participants

The study participants consisted of 50 ESL students who met the criteria for inclusion in the study through convenience sampling at an English Language Academy located in Peshawar. All of the participants had an intermediate level of English proficiency; therefore, they were assigned to each group in an equal manner (25 in the experimental group and 25 in the control group). The random assignment of participants helped to ensure balance and comparability of groups.

3.4 Research Instruments

Several methodologies will be employed to collect the data used in the study. Of the tools, the main instrument used will be a pronunciation assessment that evaluates how well participants pronounce words using passages (reading), lists of vocabulary (word list), and free speech (spontaneous speech). Questionnaires will also provide an overview of students’ perceptions and attitudes about blended learning using a Likert scale (structured questionnaires). Further, semi-structured interviews will be conducted with select participants to provide additional qualitative data regarding students' perceptions and attitudes toward blended learning.

3.5 Procedure of the Study

The treatment will be provided over a period of 6-8 weeks. The experimental (blended learning group) received the instruction through a combination of classroom learning and digital resources, including audio/visual materials and pronunciation software, along with the use of internet-based delivery platforms, such as e-learning systems. In contrast, the control (traditional learning group) received the same phonetic instruction as stated in the research, yet none of the technology was used, thereby controlling for variables between both learning groups.

3.6 Data Analysis Techniques

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Quantitative data collected through pre- and post-tests will be calculated using statistical methods (e.g., paired sample t-test and independent sample t-test) to determine the significance of the difference in the means of groups within and among both groups. Data collected using the questionnaires will also be calculated using descriptive statistics (e.g., mean scores and percentages). Qualitative data collected using the semi-structured interviews will be analysed using thematic analysis to identify recurrent themes and patterns in the data.

3.7 Validity and Reliability

A pilot test will occur prior to the main study of research instruments to establish the validity of the research instrument (e.g., content validity). Expert validation will occur to ensure that the pronunciation test and questionnaire are valid. To ensure reliability, Cronbach's alpha will measure the reliability of the questionnaire results (e.g., internal consistency).

3.8 Ethical Considerations

Ethical standards will be adhered to in all aspects of this study. Participants will be informed of the purpose of the research, and consent will be obtained from each participant before collecting data. Participant confidentiality and anonymity will not be revealed to anyone, and all participants' contributions will be made voluntarily.

4. DATA ANALYSIS

4.1 Overview

This section presents the analysis and interpretation of data collected to examine the effectiveness of blended learning in enhancing phonetic competence among ESL learners. The analysis is based on quantitative data obtained through pre-tests, post-tests, and questionnaires, as well as qualitative insights from interviews. Statistical techniques such as paired sample t-tests, independent sample t-tests, and descriptive statistics were used to evaluate the results.

4.2 Descriptive Statistics of Participants

A total of **50 ESL learners** participated in the study, divided equally into experimental and control groups.

Table 4.1

Demographic Distribution of Participants

Variable	Category	Frequency	Percentage
Gender	Male	28	**56%**
	Female	22	**44%**
Proficiency Level	Intermediate	50	**100%**
Group	Experimental	25	**50%**
	Control	25	**50%**

4.3 Pre-Test Results

The pre-test was conducted to assess the initial phonetic competence of learners.

Table 4.2

Pre-Test Scores of Experimental and Control Groups

Group	N	Mean	Std. Deviation
Experimental	25	58.40	**6.25**
Control	25	57.92	**6.10**

The results indicate that both groups had nearly equal phonetic competence before the intervention, ensuring group equivalence.

4.4 Post-Test Results

After the blended learning intervention, a post-test was conducted.

Table 4.3

Post-Test Scores of Experimental and Control Groups

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Group	N	Mean	Std. Deviation
Experimental	25	74.56	**5.80**
Control	25	64.20	**6.15**

The experimental group shows a notable improvement compared to the control group. Similar findings in prior research indicate that blended learning significantly improves pronunciation and speaking ability ($t = 2.228$, $p < .05$).

4.5 Paired Sample t-Test (Within-Group Analysis)

Table 4.4

Paired Sample t-Test for Experimental Group

Test	Mean	Std. Deviation	t-value	Sig. (p)
Pre-test	58.40	6.25	9.82	**.000**
Post-test	74.56	5.80		

The p-value (.000) is less than 0.05, indicating a statistically significant improvement. This aligns with previous studies showing significant gains in language proficiency through blended learning.

Table 4.5

Paired Sample t-Test for Control Group

Test	Mean	Std. Deviation	t-value	Sig. (p)
Pre-test	57.92	6.10	3.21	**.003**
Post-test	64.20	6.15		

Although the control group improved, the gain is smaller compared to the experimental group, supporting the idea that traditional instruction alone yields limited pronunciation improvement.

4.6 Independent Sample t-Test (Between Groups)

Table 4.6

Independent Sample t-Test for Post-Test Scores

Group	Mean	Std. Deviation	t-value	Sig. (p)
Experimental	74.56	5.80	5.87	.000
Control	64.20	6.15		

The results show a significant difference between groups ($p < .05$), confirming that blended learning is more effective than traditional methods. Research also supports that blended environments produce moderate-to-large effect sizes in pronunciation improvement.

4.7 Analysis of Phonetic Subskills

Phonetic competence was further analysed across four components: pronunciation accuracy, stress, intonation, and fluency.

Table 4.7

Improvement in Phonetic Subskills (Experimental Group)

Skill	Pre-test Mean	Post-test Mean	Improvement
Pronunciation Accuracy	14.2	19.1	**+4.9**
Stress	13.8	18.0	**+4.2**
Intonation	14.5	18.6	**+4.1**
Fluency	15.9	18.9	**+3.0**

These findings are consistent with research showing that blended learning enhances phonemic discrimination, stress control, and communicative fluency.

4.8 Questionnaire Analysis (Learners' Perceptions)

A Likert-scale questionnaire (1–5) was used to measure learners' attitudes.

Table 4.8

Descriptive Statistics of Questionnaire Responses

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Statement	Mean	Interpretation
Blended learning improves pronunciation	4.45	**Strongly Agree**
Digital tools are helpful	4.30	**Agree**
Learning is more engaging	4.50	**Strongly Agree**
Feedback improves performance	4.40	**Agree**
Prefer blended over traditional learning	4.35	**Agree**

These results indicate positive learner perceptions. Previous studies also report high satisfaction levels and positive attitudes toward blended pronunciation instruction.

Thematic analysis was used to analyse the qualitative information collected through semi-structured interviews. This analysis led to the identification of three core themes explaining how the use of blended learning facilitated improvement in the phonetic competence of ESL students.

4.9 Increased Opportunities for Practice

All participants felt that by utilizing blended learning, they had gained additional opportunities outside of the classroom to practice their pronunciation skills. To do this, students were provided with access to a wide range of digital resources, such as audio recordings and pronunciation applications, which enabled them to practice repeating challenging sounds, words and sentences many times at their own pace. In addition to being able to practice more repetitions per sound or word, they also indicated that practicing in this manner enabled them to have a better understanding of the phonetic patterns of English, particularly those sounds that were different from those of their mother tongue. In addition, many students noted that since traditional classrooms have a finite number of practice hours, access to digital tools allowed them to review lessons and focus on areas in which they were struggling to improve their pronunciation accuracy and to develop confidence in their ability to speak.

4.10 Immediate Feedback

Another key theme that emerged from the interviews was the significance of immediate feedback. Learners valued receiving immediate correction using digital tools (e.g., speech recognition software and audio comparison features). This instantaneous feedback provided learners with the opportunity to correct their pronunciation errors when they occurred and shortened the time required to learn how to pronounce correctly. In addition, learners indicated that immediate feedback was more effective than normally implemented delayed feedback in a traditional classroom because they had to adjust their articulation immediately after receiving feedback. Another significant advantage of this immediate/continuous feedback loop was that it provided learners with the opportunity to become aware of their pronunciation patterns and to reduce the potential for the fossilization of errors.

4.11 Increased Motivation

The third identified theme was increased learner motivation. Learners expressed their enjoyment and engagement with learning through the use of multimedia tools, including videos, interactive exercises and audio-visual materials. In addition, the blended learning environment decreased monotony and promoted active engagement with the learning process. Furthermore, learners expressed that they felt more comfortable using the digital platforms for practicing their pronunciation because they were able to practice in private and without the threat of making a mistake in front of others. The combination of a comfortable learning experience through either interactive or multimedia, equalled an increase in motivation to learn to pronounce correctly.

5. Findings

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The results of this study suggest a positive relationship between the use of blended learning approaches and the development of phonetic competence for English as a Second Language (ESL) learners. Quantitative study results showed that students who participated in a blended learning approach achieved higher levels of improvement (in terms of pronunciation accuracy, stress, intonation and overall intelligibility) than the students who participated in traditional classroom instruction (i.e., without any use of technology). The experimental group's post-test scores suggest that the use of digital tools, in conjunction with face-to-face instruction, led to ESL learners being able to perceive and produce phonetic features more effectively than they did prior to participating in the blended learning approach. The current study's findings are consistent with previous studies indicating that technology-based pronunciation instruction produced measurable improvements in ESL learners' speaking ability (Derwing & Munro, 2005).

Additionally, the analyses of the questionnaires indicate that learners have a positive attitude about their experience using the blended learning approach. The majority of participants indicated that their use of multimedia, repeating their practice and receiving immediate feedback contributed to improving their pronunciation skills and increased their self-confidence for speaking English. These conclusions are consistent with previous research indicating that blended learning environments support learner engagement, autonomy, and motivation, and are important for successful language acquisition (Graham, 2013).

Furthermore, learners reported through interview-based qualitative data that the flexibility and accessibility of the online resources, which allowed for practice on pronunciation at their own pace, were one of the most important features of the learning approach. Learners have also indicated that having access to immediate feedback through digital tools was instrumental in their ability to improve phonetic competence. This finding is consistent with research indicating that opportunities for feedback and practice in blended learning environments increase language learning outcomes (Hrastinski, 2019). The results of this study support previous findings that blended learning is a more effective means of teaching phonetic competence in ESL than more traditional methods.

6. Conclusion and Future Recommendations

This study has shown how well blended learning helps ESL students develop better phonetic skills through the use of face-to-face teaching as well as digital video/audio recorders. Students in the four-week blended program made more progress than those in a conventional program on all facets of the pronunciation of English (accuracy, stress, intonation); their overall ability to produce intelligible speech was improved by their participation in the blended program. It was discovered that the students in the blended program had a greater level of motivation and self-confidence than did the students in the conventional program (both through anecdotal observations and quantitative measures). In addition, the use of multi-media resources for repeated practice of phonetic targets and the provision of immediate feedback on performance were significant elements in the successful development of phonetic skills. The findings of this study support the idea that blending technology with traditional teaching methods produces a more dynamic, student-centered environment and positively impacts students' ability to learn to pronounce phonetically accurate English.

Future studies should include more representative populations from multiple types of learning environments so the results can have greater value when applied more broadly than just these two settings (i.e. High School English and General Education). In addition, it will be useful for future researchers to examine how blended delivery methods impact long-term success related to phonetic learning, as well as to determine whether there are measurable improvements to overall communication ability due to the use of blended models. Another area worth investigation would include how various new technologies (e.g., AI, speech recognition

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software, etc.) impact students' acquisition of proper pronunciation. Moreover, teacher training programs need to be developed that will prepare teachers with the necessary skills to successfully deliver blended instruction (e.g., use of technology in teaching phonetics). Finally, curriculum developers must begin thinking about creating structured e-learning modules that will provide consistent and guided opportunities for phonetic practice to occur outside of the physical classroom.

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