

EFFECT OF ZOOM CLASSROOM INSTRUCTIONAL APPROACH ON UNDERGRADUATE ENGLISH LANGUAGE STUDENTS' INTEREST AND ACHIEVEMENT IN PHONETICS IN FEDERAL UNIVERSITIES IN SOUTH-EAST NIGERIA

Ngozi Georgina Okoyeukwu

Department of Arts Education

Faculty of Education, University of Nigeria, Nsukka

Abstract

This study examined the effect of Zoom instructional approach on undergraduate English language students' interest and achievement in phonetics in federal universities in South-East Nigeria. Persistent low interest and poor achievement in phonetics have been attributed to the dominance of traditional lecture-based instructional approaches, which limit active participation, interaction, and practical engagement. Anchored on Social Constructivist Theory and Distance Learning Theory, the study adopted a quasi-experimental research design involving pre-test and post-test measures. The population comprised first and second year undergraduate English language students offering phonetics, while a sample of 105 students was selected using purposive and random sampling techniques. Data were collected using a self developed English Phonetics Interest Inventory (EPII) and English Phonetics Achievement Test (EPAT). The instruments were validated by five experts from the University of Nigeria, Nsukka: three experts in English Language Education, one in Educational Technology (all from the Department of Arts Education), and one expert in Measurement and Evaluation from the Department of Science Education. Reliability was established using Cronbach's alpha and KR-20, yielding coefficients of 0.85 for EPII and 0.88 for EPAT, respectively. Data were analysed using mean and standard deviation to answer the research questions while T-test and ANCOVA were used to test the hypotheses at 0.05 level of significance. Findings revealed that the zoom instructional approach significantly improved students' interest and achievement in phonetics. Gender had no significant influence on both variables. The study concluded that Zoom instruction approach enhances students' engagement, interaction, and academic performance in phonetics. It was recommended that lecturers integrate Zoom instructional approach in their teaching to improve learning outcomes.

Keywords: Zoom classroom, interest, achievement, phonetics, instructional approach

Introduction

Phonetics is a fundamental component of English language education, as it provides the scientific basis for understanding speech sounds and developing accurate pronunciation skills. It plays a crucial role in enhancing learners' intelligibility, communication effectiveness, and overall language competence. In second language contexts such as Nigeria, where English serves both as a subject of study and as the medium of instruction across educational levels, phonetics becomes particularly important for undergraduate students, especially those preparing to become English language teachers. Mastery of phonetics enables learners to produce speech sounds accurately, interpret spoken language effectively, and teach pronunciation skills competently in future professional contexts.

Despite its importance, many undergraduate students continue to demonstrate low interest and poor achievement in phonetics. Bamigbade and Raji, (2021) observed weak phonetics skills, inaccurate pronunciation and intonation among many undergraduate students in Nigeria universities. This challenge has been widely attributed to the abstract nature of

phonetic concepts, the technicality of phonetic transcription, and the limited opportunities for practical engagement during instruction (Adegbite & Ayoola, 2020; Akinjobi, 2015). Students often perceive phonetics as difficult and detached from real-life communication, which negatively affects their motivation and learning outcomes. This situation underscores the need for more effective instructional approaches that can simplify phonetic concepts and make learning more engaging and meaningful. A clearer understanding of phonetics as a field of study is necessary to address these learning difficulties.

Phonetics, as a discipline, is defined as the scientific study of speech sounds, including their production (articulatory phonetics), transmission (acoustic phonetics), and perception (auditory phonetics). It involves the systematic analysis of how speech sounds are formed, how they travel through the air, and how they are interpreted by listeners. Phonetics equips learners with essential skills such as sound identification, transcription using phonetic symbols, and accurate pronunciation. However, several studies like that of Okolie and Nwoked, (2020) and Okoro and Aina, (2021), have shown that students face persistent difficulties in mastering these skills due to inadequate instructional methods and insufficient practice opportunities. This situation highlights the importance of exploring interest as a key factor influencing students' learning in phonetics.

Interest is a critical factor in the teaching and learning process. It determines the level of attention, engagement, and persistence that learners bring to academic tasks. When students develop interest in a subject, they are more likely to participate actively, invest effort, and achieve better learning outcomes. Conversely, lack of interest leads to disengagement, poor concentration, and low academic performance (Renninger & Hidi, 2019). In phonetics, where continuous practice and active participation are essential, students' interest plays a vital role in determining their success.

Closely related to interest is academic achievement, which refers to the measurable level of knowledge and skills acquired by learners in a given subject area. In phonetics, achievement involves the ability to correctly identify, produce, and transcribe speech sounds. However, reports have consistently shown that students' achievement in phonetics remains low in many Nigerian universities, largely due to ineffective teaching methods and limited opportunities for interactive learning (Ononiwu & Njemanze, 2015; Adegbite & Ayoola, 2020). Poor achievement in phonetics can hinder students' communication skills and limit their effectiveness as future language teachers. The continued low interest and poor achievement in phonetics among undergraduate English language students have been linked to several factors, notably the continuous reliance on traditional lecture-based instructional approaches. These approaches are largely teacher-centred and emphasize passive learning, where students are expected to listen to explanations and take notes without meaningful engagement. Such methods according to Adenike and Oyebade (2015) and Adewumi and Ogunsiji (2018), do not provide sufficient opportunities for students to practise pronunciation, engage in collaborative learning, or receive immediate feedback, which are essential for mastering phonetic skills .

In response to these limitations, the integration of technology in education has led to the emergence of innovative instructional approaches aimed at improving student engagement and learning outcomes. Online learning, in particular, has gained significant attention in recent years, especially following the global disruption caused by the COVID-19 pandemic. Online learning environments provide flexibility, accessibility, and opportunities for interaction, thereby transforming traditional teaching and learning processes (Dhawan, 2020; Adedoyin & Soykan, 2020). This development has led to the increased adoption of specific online platforms that support real time interaction in teaching and learning.

Among the various online learning tools, zoom has emerged as a widely used platform for synchronous virtual instruction. Zoom enables real-time communication between

teachers and students through video conferencing, screen sharing, chat functions, and breakout rooms. These features create an interactive learning environment that supports active participation, collaboration, and immediate feedback. Studies have shown that Zoom-based instruction enhances students' engagement, motivation, and participation in learning activities (Chakraborty, Mittal & Gupta, (2023); Salami & Onukaogu, 2021). In addition to promoting engagement and participation, digital tools have been shown to enhance learning outcomes.

Furthermore, the use of digital tools in language instruction has been found to improve students' learning outcomes by providing opportunities for repeated exposure, guided practice, and interactive learning experiences (Hockly 2018). Online learning platforms also allow students to access recorded lessons, which can be revisited for reinforcement and better understanding. This is particularly beneficial in phonetics, where repeated listening and practice are essential for mastering speech sounds. However, despite the potential benefits of zoom and other online learning tools, several challenges have been identified. These include issues related to digital access, technological competence, internet connectivity, and learner readiness (Bol, 2022; Adedoyin & Soykan, 2020). Such challenges may affect the effectiveness of Zoom based instruction, particularly in developing contexts where access to digital resources may be limited.

The effectiveness of Zoom classroom instructional approach can be further understood through relevant learning theories. Social Constructivist Theory (Vygotsky, 1978) emphasizes learning through interaction, collaboration, and social engagement, all of which are facilitated by zoom's interactive features. Similarly, Distance Learning Theory (Moore & Kearsley, 2011) highlights the role of technology in enabling flexible and accessible learning, which aligns with the use of zoom for instructional delivery. Given the persistent challenges associated with teaching and learning phonetics and the increasing relevance of technology-driven instructional approaches, it becomes necessary to explore the effectiveness of Zoom classroom instructional approach in enhancing students' interest and achievement in phonetics. This concern gives rise to the need to clearly articulate the problems facing the teaching of phonetics in federal universities.

Statement of the Problem

Despite the recognized importance of phonetics in English language education, undergraduate students continue to demonstrate low interest and poor academic achievement in the subject. Many undergraduate English Language students exhibit weak phonetics skills indicating low interest and poor performance; this problem is evident in students' lack of engagement during phonetics lessons, reduced participation in classroom activities, and inability to apply phonetic concepts effectively in practical situations. Many students perceive phonetics as abstract, complex, and difficult, which leads to negative attitudes and poor learning outcomes. One of the major factors contributing to this problem is the continued reliance on traditional lecture-based instructional approaches in many Nigerian universities. These approaches are largely teacher-centred and limit students' opportunities for active participation, interaction, and practical engagement. As a result, students are often unable to develop the necessary skills required for accurate pronunciation and phonetic transcription. In addition, phonetics requires intensive practice, including listening, imitation, and transcription exercises. However, traditional instructional methods often fail to provide sufficient opportunities for such practice. This results in students' inability to internalize phonetic concepts, leading to frustration, loss of interest, and poor academic performance. Although the integration of technology in education has introduced innovative instructional approaches such as zoom instructional approach, there is still limited empirical evidence on its effectiveness in improving students' interest and achievement in phonetics, particularly in

the federal Nigerian university context, issues such as digital access, technological competence, and learner readiness may influence the effectiveness of Zoom classroom instructional approach. Additionally, while previous studies have examined the effects of instructional approaches on students' interest or achievement, few studies have investigated both variables simultaneously within the context of phonetics. There is also limited research on the influence of gender and the interaction effect of instructional approach on students' learning outcomes in phonetics. Hence, this gap in the literature creates the need for this study, which investigates the effect of zoom classroom instructional approach on undergraduate English language students' interest and achievement in phonetics.

Purpose of the Study

The purpose of the Study is to determine the effect of Zoom classroom instructional approach on undergraduate English language students' interest and achievement in phonetics in federal universities in South-East. Specifically, this study determined the:

1. effect of Zoom classroom instructional approach on undergraduate English language students' interest in phonetics.
2. effect of Zoom classroom instructional approach on undergraduate English language students' achievement in phonetics.
3. difference in the mean interest scores of male and female students in phonetics .
4. difference in the mean achievement scores of male and female students in phonetics .

Research Questions

The following research questions were formulated to guide this study:

1. What is the effect of Zoom instructional approach on students' interest in phonetics?
2. What is the effect of Zoom instructional approach on students' achievement in phonetics?
3. What is the difference in the mean interest scores of male and female students in phonetics?
4. What is the difference in the mean achievement scores of male and female students in phonetics?

Hypotheses

- H₀₁: There is no significant difference between the pretest and posttest interest mean scores of students exposed to the Zoom classroom instructional approach.
- H₀₂: There is no significant difference between the pretest and posttest achievement mean scores of students exposed to the Zoom classroom instructional approach.
- H₀₃: There is no significant difference in the mean interest scores of male and female students in Phonetics
- H₀₄: There is no significant difference in the mean achievement scores of male and female students in Phonetics

Methods

The study adopted a quasi-experimental research design involving pre-test and post-test measures. This design was appropriate because it allowed the researcher to examine the effect of the Zoom classroom instructional approach on students' interest and achievement without random assignment of participants. The study was conducted in federal universities in South-East Nigeria. The population comprised first and second year undergraduate English language students offering phonetics. A sample of 105 students was selected using purposive sampling to identify participating institutions and simple random sampling to select participants. The instruments for data collection were the English Phonetics Interest

Inventory (EPII) and the English Phonetics Achievement Test (EPAT) developed by the researcher. The EPII has 20 items that were structured on a four-point rating scale of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1), while the EPAT consisted of 40 objective test items designed to measure students' achievement in phonetics. The instruments were validated by five experts from the University of Nigeria, Nsukka: four from the Department of Arts Education (three in English Language Education and one in Educational Technology) and one in Measurement and Evaluation from the Department of Science Education. The reliability of the instruments was determined using Cronbach's Alpha for EPII and Kuder-Richardson Formula 20 (KR-20) for EPAT, yielding coefficients of 0.85 and 0.88 respectively, which were considered adequate for the study. The treatment lasted for five weeks. The lecturer scheduled virtual classes using zoom and shared meeting links with students via WhatsApp. During each session, instruction was delivered through live video conferencing. The lecturer used screen sharing to present phonetic concepts, demonstrate articulation of sounds, and guide transcription exercises. Students actively participated through verbal responses, chat contributions, and collaborative discussions. Breakout rooms were used for group activities such as pronunciation drills, minimal pair practice, and peer interaction. The lecturer monitored activities, provided feedback, and corrected errors in real time. Sessions were recorded and made available for revision. Data were analysed using mean and standard deviation to answer the research questions. T-test was used to test hypotheses 1 and 2, while ANCOVA was used to test hypotheses 3 and 4 all at the 0.05 level of significance.

Results

Research Question One: What is the effect of the Zoom classroom instructional approach on undergraduate English language students' interest in phonetics?

Table 1: Mean and Standard Deviation of Students' Pretest and Posttest Interest Scores

Test	N	Mean	Standard Deviation	Mean Gain
Pretest	105	40.32	5.07	—
Posttest	105	73.31	7.11	32.99

The students had a pretest mean interest score of 40.32 (SD = 5.07) and a posttest mean interest score of 73.31 (SD = 7.11). The mean gain of 32.99 indicates an increase in students' interest in phonetics following exposure to the Zoom classroom instructional approach. The noticeable increase in mean scores between the pretest and posttest indicates that the Zoom classroom instructional approach enhanced students' interest in phonetics. This suggests that the use of interactive online tools, audio-visual materials, and real-time engagement in Zoom created a more stimulating learning environment that promoted students' motivation and sustained their interest.

Research Question Two: What is the effect of Zoom classroom instructional approach on students' achievement in phonetics?

Table 2: Mean and Standard Deviation of Students' Pretest and Posttest Achievement Scores

Test	N	Mean	Standard Deviation	Mean Gain
Pretest	105	39.31	7.02	—
Posttest	105	72.10	7.59	32.78

The students had a pretest mean achievement score of 39.31 (SD = 7.02) and a posttest mean achievement score of 72.10 (SD = 7.59). The mean gain of 32.78 indicates an improvement in students' achievement in phonetics following exposure to the Zoom classroom instructional approach. This substantial improvement in achievement scores

indicates that the Zoom classroom instructional approach enhanced students' understanding and mastery of phonetic concepts. The result implies that the opportunity for repeated exposure, guided practice, and immediate feedback during Zoom sessions contributed significantly to improved academic performance.

Research Question Three: What is the difference in the mean interest scores of male and female students in phonetics?

Table 3: Mean and Standard Deviation of Male and Female Students' Interest Scores

Gender	N	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Male	16	42.44	5.73	75.50	7.87
Female	89	39.78	4.73	72.76	6.78

Male students recorded a posttest mean interest score of 75.50 (SD = 7.87), while female students recorded a posttest mean interest score of 72.76 (SD = 6.78). This shows a small numerical difference in the mean interest scores of male and female students in favour of the males. The posttest and adjusted mean scores for both genders are very close, indicating that both male and female students benefited equally from the Zoom classroom instructional approach.

Research Question Four: What is the difference in the mean achievement scores of male and female students in phonetics?

Table 4: Mean and Standard Deviation of Male and Female Students' Achievement Scores

Gender	N	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Male	16	38.06	8.82	72.06	9.63
Female	89	39.46	6.74	72.42	7.23

Male students recorded a posttest mean achievement score of 72.06 (SD = 9.63), while female students recorded 72.42 (SD = 7.23). Descriptively, the female students had a slightly higher posttest mean achievement score. The posttest and adjusted mean scores for both genders are very close, indicating that both male and female students benefited equally from the Zoom classroom instructional approach. This suggests that gender had no influence on students' achievement in phonetics.

Hypothesis 1: There is no significant difference between the pretest and posttest interest mean scores of students exposed to the Zoom classroom instructional approach.

Table 5: T-test Analysis of Students' Pretest and Posttest Interest in Phonetics

Test	N	Mean	SD	Mean Difference	t	df	P-value	Decision
Pretest	105	40.32	5.07	—	—	—	—	—
Posttest	105	73.31	7.11	32.99	80.966	104	< .001	Significant

The paired-samples t-test showed a significant difference between students' pretest and posttest interest scores, $t(104) = 80.966$, $p < .001$. Since the p-value was less than .05, H_{01} was rejected. Thus, students' interest in phonetics increased significantly following exposure to the Zoom classroom instructional approach.

Hypothesis 2: There is no significant difference between the pretest and posttest achievement mean scores of students exposed to the Zoom classroom instructional approach.

Table 6: Paired-Samples t-test of Students' Pretest and Posttest Achievement Scores

Test	N	Mean	SD	Mean Difference	t	df	P-value	Decision
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Pretest	105	39.31	7.02	—	—	—	—	—
Posttest	105	72.10	7.59	32.78	118.621	104	< .001	Significant

The paired-samples t-test showed a significant difference between students' pretest and posttest achievement scores, $t(104) = 118.621$, $p < .001$. Since the p-value was less than .05, H_{02} was rejected. Thus, students' achievement in phonetics increased significantly following exposure to the Zoom classroom instructional approach.

Hypothesis 3: There is no significant difference in the mean interest scores of male and female students in Phonetics.

Table 7: ANCOVA Result for the Influence of Gender on Students' Interest in Phonetics

Source	Sum of Squares	df	Mean Square	F	p-value	Decision
Pretest Interest (Covariate)	3346.636	1	3346.636	209.497	< .001	Significant
Gender	1.794	1	1.794	0.112	.738	Not Significant
Error	1629.409	102	15.975	—	—	—

After controlling for students' pretest interest scores, the ANCOVA showed that there was no significant difference in the mean interest scores of male and female students in phonetics, $F(1, 102) = 0.112$, $p = .738$. Since $p > .05$, H_{03} was not rejected.

Hypothesis 4: There is no significant difference in the mean achievement scores of male and female students in Phonetics.

Table 8: ANCOVA Result for the Influence of Gender on Students' Achievement in Phonetics

x	Sum of Squares	df	Mean Square	F	p-value	Decision
Pretest Achievement (Covariate)	5317.819	1	5317.819	813.542	< .001	Significant
Gender	15.309	1	15.309	2.342	.129	Not Significant
Error	666.736	102	6.537	—	—	—

After controlling for students' pretest achievement scores, the ANCOVA showed that there was no significant difference in the mean achievement scores of male and female students in phonetics, $F(1, 102) = 2.342$, $p = .129$. Since $p > .05$, H_{04} was not rejected.

Discussion of Findings

The findings of this study revealed that the Zoom instructional approach significantly improved undergraduate students' interest in phonetics. This was evident in the substantial increase in posttest mean scores compared to pretest scores. This improvement may be attributed to the interactive nature of Zoom, which supports real-time communication, collaborative learning, and immediate feedback. Features such as breakout rooms, chat functions, and live discussions likely enhanced students' engagement and made phonetics learning more interesting and less abstract. This finding aligns with Martin and Bolliger (2018), who reported that interactive online learning environments significantly enhance student engagement and interest. Similarly, Hung (2015) found that technology-mediated instruction promotes higher levels of motivation and learner participation. The finding also supports Social Constructivist Theory (Vygotsky, 1978), which emphasizes learning through

interaction and collaboration. Zoom provides a platform for such interaction, thereby fostering increased interest among learners.

The study further revealed that Zoom instructional approach significantly improved students' achievement in phonetics. The increase in posttest achievement scores indicates that students were able to better understand and apply phonetic concepts. This improvement may be attributed to several factors. First, Zoom allows for real-time explanation and demonstration of phonetic concepts. Second, students receive immediate feedback during lessons, which helps correct errors promptly. Third, recorded sessions provide opportunities for revision, thereby reinforcing learning. This finding agrees with Hung (2015), who reported that digital learning environments improve academic performance through increased engagement. It also aligns with O'Flaherty and Phillips (2015), who emphasized that interactive learning environments enhance understanding and retention. Furthermore, this finding supports Distance Learning Theory (Moore & Kearsley, 2011), which highlights the effectiveness of technology-mediated instruction in enhancing learning outcomes.

The findings indicated that gender had no significant influence on students' interest in phonetics. Although slight difference was observed in favour of the males, the difference was not statistically significant. This suggests that Zoom instructional approach provides an inclusive learning environment that benefits both male and female students equally. This finding is consistent with Mukuni, Asante and Almunive (2021), who reported no significant gender difference in learners' perceptions of engagement in online learning using technology-based instruction. In addition, students' interest in learning is influenced more by the design of instructional strategies and learning environments than by gender (Schrader, Seufert, & Zander, 2021).

The findings also showed that gender had no significant influence on undergraduate English language students' achievement in phonetics. Although female students recorded slightly higher mean achievement scores than male students, the difference was not statistically significant, indicating that both male and female students performed similarly. The slightly higher achievement by female students could be attributed to difference in learning engagement, participation level, familiarity with digital instructional tools or commitment to the learning activities rather than gender itself. This finding aligns with Obadare (2021), who found no significant gender difference in effect of blended learning approach on undergraduate students. This suggests that the instructional approach used in the study provided equal opportunities for academic success irrespective of gender. It also suggests that, technology-supported instructional approaches like the Zoom classroom benefit both male and female students equally.

Conclusions

Based on the findings of this study, it was concluded that the Zoom classroom instructional approach was effective in improving undergraduate English language students' interest and achievement in phonetics. It was also concluded that gender did not substantially influence students' interest and achievement when exposed to the instructional approach. This suggests that the approach provided learning opportunities for male and female students alike. Overall, the study concludes that technology-supported instructional approach can enhance the teaching and learning of phonetics in tertiary institutions.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Lecturers teaching phonetics should integrate the Zoom instructional approach as a complementary or adopt it as an alternative method to the traditional lecture-based approach.

2. Lecturers should maximize the use of interactive features available on the zoom platform, such as breakout rooms, screen sharing, chat functions, polls, and collaborative tools.
3. Universities should provide stable internet connectivity and adequate digital infrastructure to support the effective implementation of Zoom-based instruction.
4. Training programmes in form of regular workshops, seminars, and orientation programmes should be organized by universities for both lecturers and students to enhance their competence in using zoom and other digital learning tools effectively.
5. The government, in collaboration with telecommunication companies and power agencies, should expand broadband access, subsidize student data, and improve electricity supply, especially in underserved areas. The government should also provide alternative power sources such as solar systems to further enhance access and effective participation in Zoom-based learning in higher institutions.

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