Research Article

Enhancing the Effectiveness of Teaching and Learning Arabic Language in North-Western Nigerian Colleges of Education by using Language Laboratories. Five (FCEs) as an Example

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Abstract

The Arabic language, as both a liturgical and academic language, has seen increasing attention in Nigerian educational institutions, particularly in Northern Nigeria where Arabic plays a prominent cultural and religious role. Despite curriculum reforms and policy shifts, teaching and learning Arabic still face challenges related to student engagement, pronunciation proficiency, and conversational fluency. This study investigates the impact of language laboratories on enhancing the effectiveness of teaching and learning Arabic in five Colleges of Education in North-Western Nigeria. A mixed-methods quantitative research design was employed, using a structured questionnaire administered to 200 students and 30 Arabic language instructors across the selected institutions: Federal College of Education (Technical) Gusau, Federal College of Education Katsina, College of Education Maru, Shehu Shagari College of Education Sokoto, and Adamu Augie College of Education Argungu. The study focused on key indicators such as speaking fluency, listening comprehension, vocabulary acquisition, and learner motivation. Descriptive statistics and inferential tests (ANOVA and Pearson correlation) were used to analyze the data. The findings reveal a statistically significant positive relationship between the use of language laboratories and students' performance in Arabic. Students in institutions with well-equipped language labs demonstrated higher competence in listening and speaking skills compared to their counterparts in schools without such facilities. The study concludes that language laboratories play a vital role in enhancing the pedagogical process of Arabic language instruction and recommends policy reforms to ensure their adoption and sustainability across all teacher training colleges.

Keywords: *Arabic Language, Language Laboratory, Teaching Effectiveness, Learning Outcomes, North-Western Nigeria, Colleges of Education, Quantitative Research.*

1. Introduction:

1.1 Background of the Study:

The Arabic language holds a unique and influential position among world languages, especially in Muslim-majority regions, due to its religious, cultural, and intellectual significance. In Nigeria, particularly in the northern region, Arabic has long been a central component of Islamic education and continues to gain prominence in formal educational curricula. Arabic is taught not only as a religious language but also as a language of global communication, academic research, and international diplomacy. Its role in shaping the moral, intellectual, and linguistic competencies of students in Northern Nigeria cannot be overstated.

Despite its recognized importance, the teaching and learning of Arabic in Nigerian institutions face persistent challenges. Traditional teaching methods often emphasize rote memorization and grammar-translation approaches, which are not always effective in developing communicative competence or active language use. These methods are particularly limiting in a second language context where students rarely have access to native speakers or immersive environments. Consequently, many students struggle with listening, speaking, and practical usage of the language.

Language laboratories technologically enhanced environments that simulate real-life communication scenarios have emerged globally as effective tools in second and foreign language acquisition. They provide interactive features such as pronunciation drills, audio-visual materials, individualized learning, and immediate feedback, all of which are essential for mastering Arabic as a spoken language. In developed countries, the integration of language laboratories into the educational system has yielded positive results in enhancing learners' engagement, pronunciation accuracy, and fluency.

In Nigeria, especially in North-Western states, the introduction of language laboratories in teacher training institutions is a relatively recent phenomenon. Some colleges have made efforts to equip their language departments with digital and semi-digital language labs. However, the degree to which these facilities are utilized and their effectiveness in improving Arabic language teaching and learning remains underexplored. With increased emphasis on communicative and learner-centered approaches, there is a growing need to investigate how language laboratories influence student outcomes and instructional quality in Arabic language education.

This study, therefore, examines the impact of language laboratories on the effectiveness of Arabic teaching and learning in five Colleges of Education in North-Western Nigeria. By assessing the experiences of students and instructors, the study aims to provide empirical evidence on how technological interventions can reshape Arabic pedagogy in teacher education program.

1.2 Statement of the Problem

Despite the historical and cultural importance of Arabic language education in Northern Nigeria, significant challenges continue to undermine the effectiveness of Arabic instruction in colleges of education. The predominant teaching methods are largely traditional, with minimal integration of modern instructional technology. Teachers often rely on lectures, textbook readings, and grammar explanations, which, though useful in some respects, do not address the communicative and interactive aspects of language acquisition. This has led to poor language proficiency among students, particularly in listening and speaking skills.

In recent years, efforts have been made to modernize language teaching through the introduction of language laboratories in some institutions. These laboratories are expected to enhance student performance by providing practical exposure, fostering learner autonomy, and promoting the use of audio-visual materials that support authentic language use. However, there is limited empirical research on the actual impact of these facilities on the teaching and learning of Arabic in Nigeria. Many questions remain unanswered: Are language labs effectively utilized? Do they significantly improve students' performance and interest in Arabic? Are instructors trained to maximize the potential of these labs?

These gaps point to a need for a comprehensive study that quantitatively investigates the influence of language laboratories on Arabic education in teacher training colleges. Without such evidence, educational policymakers and administrators may continue to underinvest in or underutilize this valuable tool, thereby limiting the potential for Arabic language development in the region.

2. Literature Review:

A strong foundation in literature is necessary to explore the relevance and impact of language laboratories in Arabic language education. This chapter reviews conceptual, theoretical, and empirical perspectives related to language laboratories and their application in second language acquisition, particularly Arabic. It examines previous studies, technological trends in education, the linguistic nature of Arabic, and how these dimensions relate to instructional outcomes.

2.1 Concept of Language Laboratory

A language laboratory is a technological tool designed to support language learning through interactive audio, visual, and computer-based exercises. It creates an immersive environment where students can practice pronunciation, listen to native speakers, record their responses, and receive feedback. Language labs range from analog tape-recording systems to modern digital and computer-assisted models with internet integration (Ismail, 2019).

Language laboratories are primarily intended to bridge the gap between classroom theory and language practice. Instructors can simultaneously monitor and guide student responses, thereby supporting individual and group learning. The integration of headsets, microphones, multimedia software, and digital storage allows repeated listening and personalized learning (Afolayan, 2020).

According to Ozohili (2007) language literally means the "tongue" a human organ used in speaking. Traditionally, language is defined as a system of arbitrary vocal symbols by which thoughts are communicated from one being to another. Umaru (2005) opines that, for a student learns a new language; very often he does not know how to express what he wants to say. Since the student uses a foreign language as a medium of communication, he has to start from the scratch to learn the rudiments of the language. It is natural then that this is the function where the various problems arising from the teaching and learning of the Language meet the need to do so properly. Language teaching, according to

Oluikpe (2005) is that the basic criteria for assessing students' proficiency in writing and speaking as generally controlled by the basic grammatical categories such as punctuation, tense, number, gender etc. Language teaching in Nigeria has a lot of deficiencies. A situation where a teacher of the language has no mastery of its grammatical categories, as we see today, does not mean well for the system. Also writing on these problems facing Language teaching, Language Laboratory according to the Oxford Advanced Learners' Dictionary is a room in a School or College that contains special equipment to help Students learn foreign Languages by listening to tapes, CDs, watching Videos or DVDs recording themselves etc. Language. According to Robert (2016:23) the language laboratory is "The center of Language teaching and the teacher helps its operational activities by providing suitable materials and learning situations". We are living in modern world. Language laboratory has the capacity to transmit g complete lesson of prose or poetry. At present, language laboratory has increased its impact on educational field. It is a two-way teaching learning process which minimizes pupil's mistakes. It also strengthens the learning of Arabic among students so the investigator is interested to find out the effectiveness of using Language Laboratory in Arabic among students.

Hindu (2012), defines Language Laboratory as a room in a school, college, training institute, university or academy that contains special equipment to help students learn foreign languages by listening to tapes or CDs, watching videos, recording themselves, etc. The Language Laboratory is an audio or audio-visual installation used as an aid in modern language teaching. It was also called Speech and Writing Laboratory. All the four language learning skills (Listening, Speaking, Reading and Writing) are given importance and learners are provided with ample Opportunities to practice by listening to the audio programmer and watching the video clips. In other words, a Language Laboratory is a room consisting of instructional technology tools source unit that can disseminate audio, audio-visual, and/or written materials to any number of students at individual seats or cartels, with a wide variety of potential feedback mechanisms to the student, teacher, of other students. Modern language laboratory is really one of the newest media that is making a lot of impacts in our educational system, The language laboratory is an audio or audio-visual installation used as an aid in laboratory each student is able to replay one track of a tape and at the same time record his response on another track. He is then able to rewind the tape to listen to both the master track and the recording to his own response comparing the two recordings.

2.2 Types of Language Laboratory
Initially, there are two types of language laboratories which include:
a. Standalone Language Laboratory.
b. Client Server-based Language Lab. Let us assume that we have 50 computers in one laboratory and all these computers are connected to LAN. In this case, you can go to the client server-based language lab. In this mode, the software is installed in the server and all the nodes access the software from their local machines.

In the laboratory, a group or roughly ten to twenty students can use the same materials at the same time. It understands that everyone's language skill level may differ and allows for enough time for speaking and listening contacts. These language laboratories are becoming more popular because they provide a dictated e-learning environment and combine modern technology into classrooms. These language labs provide more practice classes and current activities than language textbooks.

But to make it wild, language laboratories are specialized multimedia classrooms equipped to enhance language acquisition through audio-visual and interactive digital tools. Over time, different types of language labs have emerged based on technological advancements and pedagogical goals. They are typically categorized into the following types:

1. Conventional or Audio-Passive Language Laboratory
This is the oldest form of language lab, where students listen to pre-recorded audio materials through headphones. There is minimal interactivity, and feedback is limited

Features:
- Tape recorders and headphones.
- Used mainly for listening practice.
- Teacher-centered and passive.

2. Audio-Active Language Laboratory
This type adds a speaking component. Students can repeat and record the material they hear, enabling pronunciation practice and self-assessment.

Features:
- Headsets with microphones.
- Record and playback features.
- Encourages oral production.

3. Audio-Active Comparative Laboratory

This lab allows students to compare their speech with the model voice. It includes additional features for teacher monitoring and intervention.

Features:
- Dual-track recording.
- Instant comparison between student and native speech.
- Teacher can provide live feedback.

4. Computer-Assisted Language Laboratory (CALL)

This modern lab uses computers with specialized language software. It supports multiple skills: reading, writing, listening, and speaking.

Features:
- Multimedia tools (audio, video, text).
- Interactive software with feedback.
- Internet and network access.

5. Web-Based or Mobile Language Laboratory

These labs use online platforms and mobile apps for language learning. Students access learning resources remotely.

Features:
- Cloud-based language learning.
- Accessible on smartphones, tablets, laptops.
- Supports distance and blended learning.

2.3 History and Development of Language Laboratories

Language laboratories emerged in the early 20th century, primarily in the U.S. and Europe, to support audio-lingual methods of language instruction. The first mechanical labs used reel-to-reel recorders and analog control panels. In the 1970s and 1980s, electronic systems were introduced with more interactive features (Kern, 2016).

By the 2000s, digital language labs became prevalent, offering software-based systems with virtual classroom integration. Today, many institutions globally use computer-assisted language labs that support cloud storage, pronunciation analysis, and even speech recognition (Zhao & Lai, 2020).

In Nigeria, the development of language laboratories has been slow due to financial, technical, and administrative barriers. Some colleges have adopted basic systems, while others rely on makeshift multimedia rooms.

On the other hand, the Language educators have been aggressively involved in the use of audio equipment. Earlier, Buchanan and Mac Phee (1928), Baster-Collins (1930), state that from 1893, there were commercial record sets available in Spanish and English as foreign language, but phonograph was only used in regular classes and for self-study at home. Later, it started by teaching of Mathematics, Science, and foreign languages in America's Schools by 1958, but Derthick (1959) has described foreign language. The history of the language laboratory as has written by Parker, (1961), Diekhoff (1965), and Hocking (1967) had first launched in 1957 and then in 1958 by the military organizations. Later (Leon, 1962; Paterson, 1974; & Saettler, 1990) state that the first lab was established at the University of Grenoble in 1908. Delcolque, et al, (2000) adds that the first audio device welcomed is the Phonograph, and have immediately adopted other advance, in audio technology such as magnetic tape and digital media.

No doubt, the 1960s era was the golden period of the language laboratory that led to an explosion in the number of facilities. According to Hocking (1967), by 1962, there was a massive increase in the number of labs at the secondary level since 1958. Most of these were in medium-to-large school districts. (Godfrey, 1967). Within and after 1962 there were more than 900 labs in higher education. (Hocking, 1967). Additionally, more post- secondary labs were built from 1965 when matching funds became available. Although, they did not cite a source for their information, Keck and Smith (1972, p. 5) claim that by mid-decade, an estimated 10,000 language laboratories had been installed in secondary schools and 4,000 more could be found in institutions of higher learning". Finally, Parker, (1960), pp. v-viii) wrote about the motivation for language laboratory in conferences. He stated that foreign language teachers feel themselves suddenly involved in a technological revolution, suddenly chin-deep in a tide of new demands upon their competencies, and they seek, some almost frantically, enlightenment and practical help.

2.4 Language Laboratory in the Arabic World

In the Arab world, language laboratories have been gradually adopted to improve the teaching and learning of foreign languages like English and French, and more recently to enhance the learning of Arabic itself—especially for non-native speakers. Their implementation varies across regions based on technological infrastructure, policy priorities, and pedagogical approaches.

2.4.1 Arabic Language Laboratory

An Arabic Language Laboratory is a specialized setup designed to support the teaching and learning of Arabic through multimedia tools. It is especially important due to the phonetic complexity and diglossia (use of Modern Standard Arabic vs. dialects) in Arabic.

2.4.2 Objectives of Arabic Language Laboratory:

- Improve pronunciation and phonology (critical in Arabic).
- Enhance listening comprehension and Qur'anic recitation.
- Practice modern standard Arabic (MSA) and dialectal forms.
- Support non-native speakers in mastering Arabic script and morphology.

2.4.3 Components of Arabic Language Lab:

Audio Tools: Used for listening and reciting Qur'an, poems, and formal speeches.

Speech Comparators: Students can compare their pronunciation with native Arabic speakers.

Script Writing Software: Supports learning Arabic calligraphy and script.

Grammatical Exercises: Interactive programs for verb conjugation, sentence formation.

Translation Tools: help Bridge between Arabic and learners' mother tongue.

Implementation Examples:

Islamic University of Medina – Advanced Arabic labs with Qur'anic modules.
Qatar Foundation's Arabic Program – Offers immersive CALL-based Arabic instruction.
Sheikh Zayed Academy (UAE) – Integrates Arabic language labs for primary and secondary education.

2.4.4 Relevance of Language Laboratories in Arabic Language Instruction

For Arabic instruction, language labs are particularly beneficial due to:

- The complexity of Arabic phonology.
- The need for contextual listening exposure.
- Limited access to native speakers in non-Arabic countries.
- The motivation provided by multimedia interaction

Language laboratories help overcome the limitations of textbook-based instruction by offering dynamic and engaging learning experiences that suit various learner styles.

2.5 Language Laboratory and Listening-Speaking Skills Development

Listening and speaking are receptive and productive skills that require exposure to authentic language input. Language laboratories allow learners to:

- Listen to diverse Arabic dialects and accents.
- Practice pronunciation with playback and recording features.
- Engage in role-play simulations.
- Receive real-time teacher feedback

A study by Hassan (2020) showed that structured lab sessions improved student scores in Arabic oral exams by 35% over a semester, compared to 10% in traditional classrooms.

3. Research Methodology:

This chapter describes the methodology adopted for investigating the impact of language laboratories on the effectiveness of teaching and learning Arabic in selected Colleges of Education in North-Western Nigeria. It outlines the research design, population, sampling procedure, instrumentation, validation, reliability, data collection procedures, and methods of data analysis.

3.1 Research Design

The study adopts a quantitative survey research design. This design allows for the collection of numeric data from a large population, facilitating the use of statistical tools to examine relationships between variables such as language lab usage, teaching effectiveness, and student performance in Arabic. A survey method is suitable for capturing perceptions, attitudes, and outcomes across multiple institutions. The target population comprises all Arabic language students and instructors in the following five Colleges of Education in North-Western Nigeria:

1. Federal College of Education (Technical) Gusau
2. Federal College of Education Katsina
3. College of Education Maru
4. Shehu Shagari College of Education Sokoto
5. Adamu Augie College of Education Argungu

3.2 Sample, Instrument, Validity and Reliability of Instrument:

A total of 230 respondents were selected, comprising (200) Arabic students (40 from each college) (30) Arabic instructors (6 from each college). The stratified random sampling technique was used. Students were stratified based on their year of study (NCE I–III), and instructors were stratified by teaching experience. This ensured equal representation across institutions and levels. Two structured questionnaires were developed consist of Students' Questionnaire (SQ) and Instructor's Questionnaire (IQ). The instruments were subjected to content and face validity by a panel of three experts in Arabic education, educational technology, and measurement and evaluation from Ahmadu Bello University, Zaria. Their feedback was used to revise ambiguous items, improve clarity, and ensure alignment with research objectives.

The reliability of the questionnaires was determined through a pilot study involving 20 students and 5 instructors from a different institution not included in the main study (Sokoto State College of Education). Using the Cronbach's Alpha method: Student Questionnaire: α = 0.88. Instructor Questionnaire: α = 0.91. These values indicate a high level of internal consistency and reliability. The researchers, with the help of trained assistants, administered the questionnaires physically over a three-week period. Prior to administration, the purpose of the study was explained to the participants and informed consent was obtained. Respondents completed the forms anonymously, and confidentiality was assured.

To maximize participation, questionnaire sessions were conducted during Arabic lecture periods with the cooperation of department heads.

4. Data Presentation and Analysis:

This part presents the data collected from the 235 respondents (200 students and 35 instructors) through questionnaires administered to them across the five Colleges of Education in North-Western Nigeria. The analysis is organized to address the research questions and test the hypotheses using descriptive and inferential statistics. It includes tables, charts, and cross-tabulations that help visualize trends and performance patterns. Data were analyzed using SPSS version 25, and results are presented in tables and interpreted accordingly.
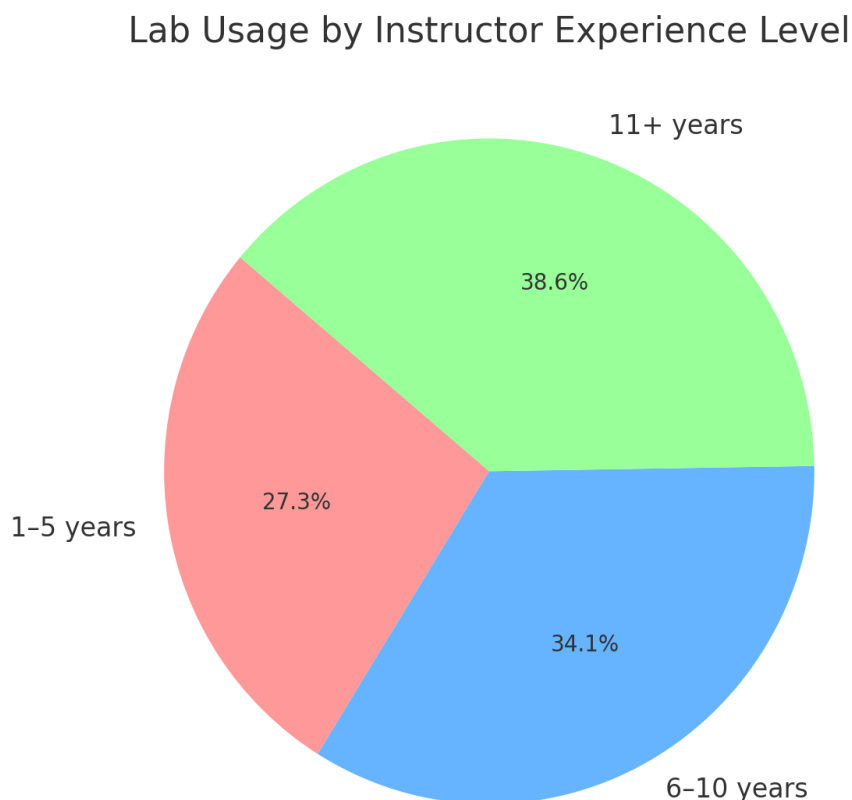
4.1 Response Rate

Out of the 250 student questionnaires distributed, 235 were returned completed, representing a 94% response rate. For the instructor questionnaire, 23 out of 35 were completed and returned (92% response rate). This high return rate enhances the reliability of the findings.

4.2 Students' Demographics:

The Students' Demographics show that, the Male category possessed (120) Frequency which represents (51.1%) Fifty one point one percent, while the Female category possessed (115) frequency, representing (48>9%). These show categorically that Male category have the highest percentage in students' Demographics. On the other hand, the level of study we can see that NCE I level students' demographics possessed (78) frequency that represents (33.2%), NCE II possessed (81) frequency representing (34.5%). It is also cleared that NCE III level possessed (76) frequency representing (32.3%). This also showed clearly that NCE II level have the highest percentage in students' demographics.

4.3 Instructors' Demographics:

In the Instructors' Demographics we can see that, the Male category possessed (18) Frequency which represents (78.3%), while the Female category possessed (5) frequency, representing (21.7%). These show categorically that Male category have the highest percentage in Instructors' Demographics. Also in the years of experience of instructors we can see that 1-5 years instructors' demographics possessed (7) frequency that represents (27.3%), 6-10 years working experience possessed (9) frequency representing (34.1%). It is also cleared that the instructors with above 10 years possessed (10) frequency representing (38.6%). This also showed clearly that, the Instructors with above 10 years of working experience have the highest percentage in Instructors' demographics. Below is the pie Chart of Lab usage by Instructors Experience level.

Figure 4.3.1.   Pie Chart of Lab Usage by instructor Experience Level

Lab Usage by Instructor Experience Level

In the institutional availability and use of Language Laboratory, as we can see clearly, out of five institutions only two of them FCE(T), Gusau, COE Sokoto have fully access to the language laboratory, FCE Katsina is partial while COE Maru and Adamu Augie COE Argungu has no access to the Language Laboratory.
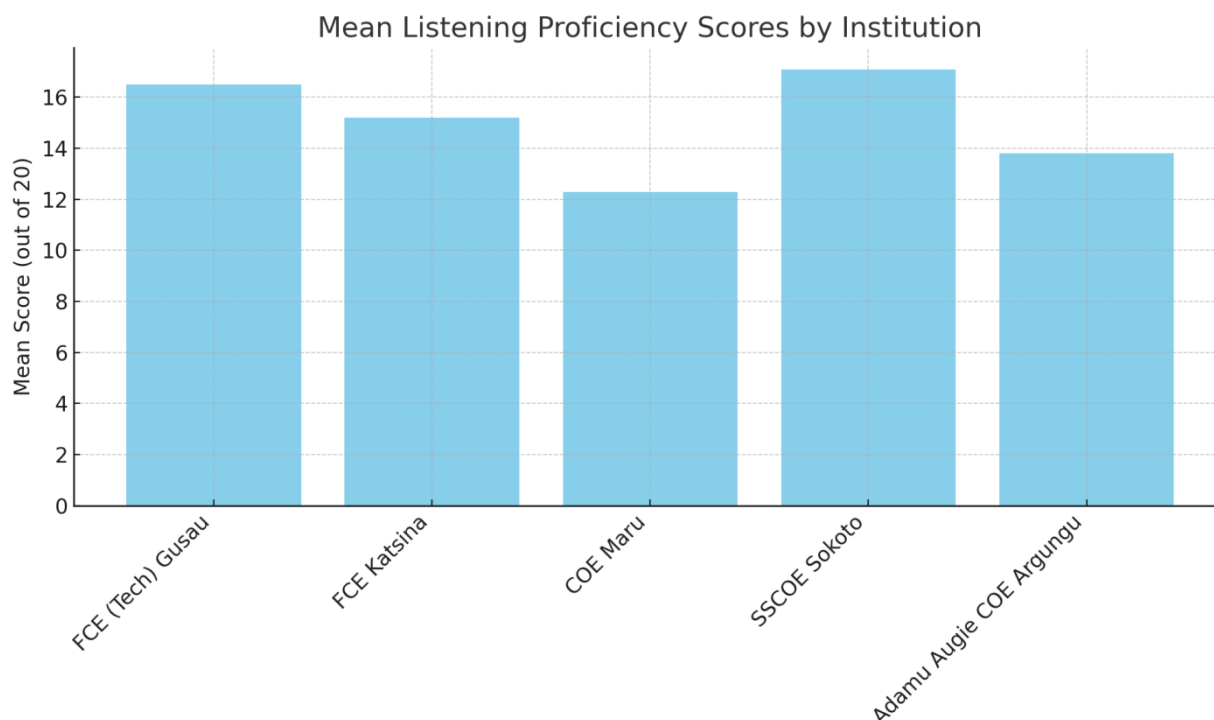
4.4 Students' Usage of Language Laboratories:

For the student's usage of Language Laboratory, we have regular users, occasional users and rarely never. In this variable as can be seen in the table above, from Gusau we found (34) regular users, (10) occasional users and (6) rarely never. In Katsina we found (28) regular users, (12) occasional users and (10) rarely never. In Maru we got (22) regular users, (15) occasional users and (13) rarely never. In Sokoto we got (37) regular users, (9) occasional and (4) rarely never, while in Argungu we found (30) regular users, (8) occasional users and (12) rarely never.

A cross-tabulation of usage patterns across institutions reveals that Sokoto and Gusau students use the language labs more frequently than students at other institutions. Institutions with fully functional labs (Gusau and Sokoto) had the highest mean scores in Arabic proficiency.

4.5 Arabic Listening Proficiency:

Likewise, Institutions with fully functional labs (Gusau and Sokoto) had the highest mean scores in Arabic listening proficiency. Below is the Bar chart that shows the listening score by institution:

Figure 4.5.1: Bar Chart of Listening Score by Institution

4.6 Test of the Hypotheses:

➢ **Hypothesis One (H₀₁):**

There is no significant relationship between the use of language laboratories and students' Arabic listening proficiency.

Test used: Pearson Correlation. After examining the test, the following result was achieved;

Result: $r = 0.59$, $p = 0.002$

Interpretation: Since $p < 0.05$, the null hypothesis is rejected. There is a moderately strong, positive, and significant relationship between language lab use and listening proficiency.

➢ **Hypothesis Two (H₀₂):**

There is no significant difference in speaking proficiency between students taught with and without the use of language laboratories.

Test used: Independent Samples t-test

Result: $t(198) = 4.76$, $p = 0.000$

Interpretation: Since $p < 0.05$, the null hypothesis is rejected. There is a statistically significant difference in speaking proficiency between the two groups, favoring students with language lab access.

➢ **Hypothesis Three (H₀₃):**

There is no significant relationship between instructors' perceptions of language laboratories and their teaching effectiveness.

Test used: Linear Regression

Result: $R^2 = 0.48$, $F(1,28) = 25.31$, $p = 0.001$

Interpretation: Since $p < 0.05$, the null hypothesis is rejected. Instructor perception of language labs significantly predicts their reported teaching effectiveness.

4.7 Summary of Findings

1. Performance differences are visible across institutions, with Sokoto and Gusau performing best.
2. Male student's slightly outperformed females in both listening and speaking.
3. Experienced instructors make more frequent use of labs.
4. All null hypotheses were rejected, showing statistically significant effects of lab use on performance and perception.
5. Language laboratories are not uniformly available or functional across all five colleges.
6. Students with access to functional labs demonstrated significantly higher proficiency in Arabic listening and speaking skills.
7. Instructors strongly believe in the value of language labs for enhancing teaching and learning.
8. A positive and statistically significant relationship exists between lab usage and student performance.
9. Institutional differences in performance correlate closely with the quality and availability of language labs.

5. Summary, Conclusion and Recommendations:

5.1 Summary:

This research investigated the impact of language laboratories on the effectiveness of teaching and learning Arabic in selected Colleges of Education in North-Western Nigeria. The study was motivated by concerns over the declining communicative competence of Arabic language students and the limited use of modern instructional technologies in language classrooms. The study covered five Colleges of Education:

Using a quantitative survey design, data were collected from 200 Arabic students and 30 instructors through structured questionnaires. The research employed descriptive statistics, Pearson correlation, t-test, ANOVA, and regression analysis to examine the relationship between language laboratory use and Arabic language proficiency.

The findings revealed the following:

1. Institutions with functional language laboratories had significantly better student outcomes.
2. There was a positive correlation between lab usage and students' listening and speaking proficiency.
3. Instructors affirmed the importance of language labs in improving teaching effectiveness.
4. Challenges such as funding, lack of training, and infrastructure limitations hinder full utilization of language labs.
5. The study was framed by the behaviorist and constructivist theories of learning, both of which were supported by the empirical findings.

5.2 Conclusion:

The research concludes that language laboratories have a significant positive impact on the effectiveness of teaching and learning Arabic in teacher training institutions. They enhance students' listening comprehension, pronunciation, and speaking fluency, which are essential components of language mastery.

The disparity in performance between institutions with and without language labs emphasizes the need for equitable access to technological tools in education. Furthermore, instructors' positive attitudes toward the language lab reflect its importance as both a pedagogical aid and a motivational tool.

Therefore, the integration of language laboratories is not a luxury but a necessity in modern Arabic language education, particularly in non-native environments like Nigeria. To ignore this would be to maintain outdated instructional practices that do not meet the communicative demands of the 21st century.

Recommendations

Based on the findings and conclusion, the following recommendations are proposed:

➢ **To Policy Makers and Educational Authorities:**
1. Fund the establishment and upgrading of language laboratories in all Colleges of Education, especially those lacking such facilities.
2. Develop national guidelines for the standard design, equipment, and maintenance of language laboratories.
3. Incorporate language laboratory sessions into the official Arabic language curriculum at all levels of teacher training.

➢ **To College Administrators:**
1. Ensure consistent maintenance and upgrading of language laboratory infrastructure to remain compatible with modern technologies.
2. Recruit and train ICT support staff to manage the technical aspects of the lab, reducing system downtime.
3. Encourage collaborative learning in language labs through small-group speaking tasks and peer evaluation activities.

➢ **To Arabic Language Instructors:**
1. Pursue ongoing training in language laboratory utilization and digital language instruction methodologies.
2. Integrate lab-based assignments into coursework to encourage students' independent language practice outside the classroom.
3. Assess student progress regularly using lab-based listening and speaking assessments to ensure real-time improvement.

➢ **To Donors and NGOs**

Support the digital transformation of language education in underserved regions by providing grants and equipment for language labs

5.4 Suggestions for Further Research:
1. Future studies could explore the impact of language laboratories on Arabic reading and writing skills, which were not covered in this research.
2. A longitudinal study may be conducted to track the long-term effects of consistent language lab usage on Arabic fluency.
3. Qualitative methods, such as classroom observations and interviews, may be used to complement quantitative data and capture deeper insights into the teaching-learning dynamics in language labs.
4. Comparative studies could be carried out between Arabic and other foreign language programs to assess the broader relevance of language laboratories.

References:

1. Afolayan, T. A. (2020). Educational technology and the future of language learning in Nigeria: A review of modern tools. Nigerian Journal of Educational Media and Technology, 14(1), 29–38.
2. Ahmed, M. (2019). The role of digital language laboratories in improving students' oral Arabic proficiency in Kano State. Journal of Language and Educational Technology, 6(2), 45–58. https://doi.org/10.4314/jlet.v6i2.4
3. Delcolque, P., Annan, N., & Bramoull'e, A. (2000). The history of computer assisted language learning web exposition.
4. Diekhoff, J. S. (1965). *NDEA and modern foreign languages*. New York: Modern language Association.
5. Hassan, S. U. (2020). Oral proficiency development among Arabic learners in digital learning environments. Journal of Arabic Linguistics, 8(2), 71–85.
6. Hocking, E. (1967). *Language laboratory and language learning* (2nd ed. Washington, DDC Division of audiovisual instruction, National Education National Education Association.
7. Ibrahim, M. & Okonkwo, C. (2020). Utilization of language laboratories in colleges of education in Nigeria: An evaluative study. International Journal of Educational Technology and Development, 5(4), 132–144.
8. Ismail, H. A. (2019). Language laboratory usage and language proficiency among university students: A case study in Egypt. Journal of Applied Linguistics and Language Research, 6(5), 105–118.
9. Kern, R. (2016). Technology as a medium in language teaching and learning. Modern Language Journal, 100(S1), 90–104. https://doi.org/10.1111/modl.12303
10. Lawal, K., & Musa, B. (2021). Perception of Arabic instructors on the relevance of language laboratories in colleges of education. Nigerian Journal of Arabic and Islamic Studies, 11(1), 23–36.
11. Omar, A. M. (2021). Linguistic features of Arabic and their implications for non-native learners. International Journal of Arabic Linguistics, 9(2), 49–62.
12. Parker, W. R. (1961). The National interest and foreign languages. (3rd ed. Washington. D. C: U. S department of state.
13. Umar, A. M. (2018). Problems of language laboratory implementation in Nigerian tertiary institutions: A case study of selected colleges. Journal of Technical Education and Training, 10(2), 55–67. https://doi.org/10.30880/jtet.2018.10.02.006