Pronunciation Syllabi in Algerian Higher Education Institutions: The Need for Implementing ICT-Focused Frameworks

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Abstract

This research paper examines the common teaching practices of pronunciation at the university level in the Algerian context and the potential of implementing digital tools and Information and Communication Technologies to address the issues that English as a Foreign Language students and teachers typically face. The paper focuses on previous syllabi analyses carried out by teacher-researchers from different Algerian higher educational institutions who investigated the logistics of traditional pronunciation teaching, the challenges encountered by students, and the potential benefits of incorporating digital tools and ICT. Ten (N=10) studies that met the inclusion criteria were reviewed and analysed to find themes and patterns that met the research objectives. The results suggest that traditional teaching practices fall short in meeting the module's objectives and in providing students with the necessary pronunciation skills. Based on the findings, this study proposes the implementation of digital tools to enhance instructional methods, provide opportunities for practice and engagement, and improve students' pronunciation. This study enriches the literature on this topic and highlights the potential of digital tools and ICT.

Keywords: Algerian Higher Education, digital tools, Information and Communication Technologies, pronunciation skills, pronunciation teaching, syllabus analysis

ملخص

تتناول هذه الدراسة الممارسات الشائعة في تدريس النطق على مستوى التعليم الجامعي في السياق الجزائري، مع التركيز على إمكانية توظيف الأدوات الرقمية وتكنولوجيا المعلومات والاتصال لمعالجة التحديات التي يواجهها أساتذة وطلبة اللغة الإنجليزية كلغة أجنبية. وتسعى إلى تسليط الضوء على مجموعة من التحليلات التي أُنجزت سابقًا في مختلف مؤسسات التعليم العالي الجزائرية، والتي تناولت برامج تعليم النطق، طرائق التدريس المعتمدة، وقابلية إدماج الأدوات الرقمية في العملية التعليمية. تم تحليل عشر دراسات مستوفية لشروط الاختيار بهدف استخلاص الأنماط والقضايا المشتركة. وتشير النتائج إلى أن الممارسات التقليدية المتّبعة لا ترقى إلى تحقيق الأهداف البيداغوجية المسطّرة، ولا تمكّن الطلبة من اكتساب المهارات النطقية المطلوبة. وبناءً على هذه المعطيات، تقترح الدراسة إدماج الأدوات الرقمية كبديل فعّال لتحسين أساليب التدريس، وتوفير فرص أكبر للتفاعل والممارسة، مما ينعكس إيجابًا على كفاءة الطلبة في النطق. وتسعى هذه الدراسة، في الأخير، إلى المساهمة في إثراء الإنتاج العلمي في هذا المجال.

كلمات مفتاحية: مؤسسات التعليم العالي بالجزائر، الأدوات الرقمية، تكنولوجيا المعلومات والاتصال، مهارات النطق، تدريس النطق، تحليل البرامج التعليمية.

Introduction

The significance of English as a Foreign Language (EFL) teaching and learning has witnessed a notable growth over the last few years, owing to its role in facilitating global communication across societies. The teaching of pronunciation, an integral facet of language instruction, assumes a central role in promoting accurate pronunciation and practical communication skills (Saidi, 2017). Within the context of Algerian higher education institutions, understanding the power of pronunciation teaching takes on paramount importance.

This paper presents a systematic literature review with two primary objectives. Firstly, it aims to identify and evaluate the effectiveness of pronunciation instruction in diverse Algerian higher educational institutions (University of Constantine 01, Ecole Normale Supérieure Constantine (ENS, or Teacher Training School), and ENS Oran). Secondly, it attempts to assess the implementation and integration of Information and Communication Technology (ICTs) in pronunciation instruction to mitigate the obstacles and challenges encountered by students in their endeavor to gain phonetics and phonological awareness at the following Algerian universities: Batna University, Oum El Bouaghi University, and Saida University. Through a thorough evaluation of the existing body of literature, the researchers aim to provide educators, administrators, and policymakers with evidence-based recommendations for enhancing the effectiveness of pronunciation instruction.

Due to the indispensable value of pronunciation instruction methods, there is a need to comprehensively and objectively evaluate the effectiveness of pronunciation teaching practices and syllabi across Algerian higher education institutions. Therefore, we believe that the following two questions should be addressed in order to reach the aims of this study:

(1) What is the state of pronunciation instruction in the three higher education institutions of Constantine 01, ENS Constantine, and ENS Oran?
(2) Is technology implementation helping mitigate obstacles and challenges in the teaching process in the three universities of Batna University, Oum El Bouaghi University, and Saida University?

Literature Review

Phonetics bears paramount relevance in EFL instruction as it plays a pivotal role in shaping accurate pronunciation and effective verbal communication (Kuutti, 2009). Raising students' phonetic and phonological awareness enables them to grasp basic notions in other language aspects, such as grammar, lexicology, stylistics, and others (Parmar, 2014), thereby enhancing their ability to comprehend and produce accurate and intelligible speech to communicate with precision. Moreover, a solid foundation in phonetics ultimately empowers learners to achieve enhanced overall fluency, thereby opening doors to academic, professional, and social opportunities (Younus, 2020).

However, despite the considerable weight of pronunciation in EFL learning, students face numerous challenges that negatively impact their learning. One of the main difficulties is the symbol-to-sound correspondence, characterised by unpredictability and, at times, being labelled as unsystematic in English, unlike in other Indo-European and even Uralic languages, as phonemes do not always match graphemes (O'connor, 1980; Kuutti, 2009; Abugohar & Yunus, 2018). Furthermore, the presence of differences between one's mother tongue and the target language (English), among other reasons, can lead to interference, transfer, and

mispronunciation, reducing, therefore, one's chances of transcribing segments correctly. Additionally, the lack of authentic and realistic exposure and attentive listening to English leaves students with a faulty model, thus an inability to decipher some sounds, and that, by extension, leads to lowered phonemic awareness (Benguesmia, 2012). Finally, the instructional methodology of these modules, including the approaches, techniques, and tools, carries substantial significance as it can either build or destroy students' knowledge of pronunciation, as well as their motivation to teach it.

Recently, the field of phonetics has witnessed a remarkable evolution in its cross-disciplinarity with other fields such as psycholinguistics, speech pathology, technology, artificial intelligence, and, of course, Second Language Acquisition (SLA) (Maassen et al., 2003; Howard & Heselwood, 2002; Souici & Chelli, 2022; Olowoyeye, 2022; Bahraoui & Benabed, 2022). Phonetics has been applied to address speech pathologies and learning disabilities, such as dyslexia, among both adults and children through interventions conducted by specialists (Berent et al., 2016). Research has shown promising results in the use of phonetics-based solutions to treat learning disabilities or difficulties (Rahilly, 2003). Moreover, IPA marks itself as a powerful tool that facilitates EFL learning as it provides a more contingent symbol-to-sound correspondence to learners (Rajab, 2013; Trazo & Abocejo, 2019). Raising learners' phonemic awareness through the introduction of the IPA can contribute to enhancing their pronunciation, phonological pattern recognition, and overall communicative competence (Guehliz, 2017). Furthermore, the growing body of literature researching pronunciation instruction points to a remarkable shift towards a more technology-based instruction. The newly developed teaching methodologies attempt to blend traditional techniques with modern tools. The integration of technology into the educational process has proven effective in overcoming the traditional limitations of conventional language classrooms to some extent, as revealed in Boudersa (2021) and Nasim et al. (2022).

In recent years, several interesting trends have emerged in the field of pronunciation instruction. Those trends have helped shape the way EFL is viewed, taught, and learned. For instance, many university teachers as well as researchers advocate for the use of virtual learning environments, interactive ICT tools, Computer-Assisted Phonetics Teaching (CAPT), and Mobile-Assisted Language Learning (MALL) to render classes more immersive and engaging (Souici & Chelli, 2022; Olowoyeye, 2022; Miangah & Nezarat, 2012; Dallal, 2021; Delrue, 2010). In the Algerian context, one of the leading causes that prompted the Ministry of Higher Education to adopt this paradigm shift was the COVID-19 pandemic, which marked the beginning of an era in which strict measures were implemented to minimize the presence of individuals on university campuses as a precaution. At the time, the best alternative to on-site education proved to be e-learning (both synchronous and asynchronous) due to its flexibility and efficiency (Fersaoui & Ghenim, 2022). Following the COVID-19 pandemic, many Algerian higher education institutions continued to implement hybrid education for the majority of their modules, including those that focus on teaching pronunciation, phonetics, and oral expression. For instance, teachers at the University of Biskra took it upon themselves to design comprehensive phonetics and oral expression courses on the Moodle Platform; the courses encompass an array of videos, lecture handouts, and e-assignments available to all students at all times (Chelli & Saihi, 2020).

Methods and Materials

This paper utilises a systematic review research design, involving a structured and comprehensive search and analysis of available literature on the topic to assess the state of pronunciation instruction across three different universities, and to investigate the extent to which the use of ICTs enhances and smoothens the process of teaching pronunciation.

The selection criteria for this systematic literature review are as follows:

(1) Research papers written by Algerian authors in this decade (post the year 2000);
(2) research papers with research questions and objectives relevant to syllabi and/or methods of pronunciation instruction in Algerian Universities;
(3) research papers discussing the implementation of ICTs in pronunciation instruction.

The researchers utilized diverse online open-source libraries and databases, including Google Scholar, ASJP, Taylor & Francis Online, and Thèses-Algérie, among others, along with a custom range filter of 2005–2023 to narrow down the results and locate articles that fit the aforementioned inclusion criteria.

Data Collection

To extract data from different papers and address the research questions, the researchers clustered them into the following two clusters: (1) papers that review pronunciation syllabi and instruction methods; and (2) papers that address the implementation of ICTs in pronunciation instruction.

The first cluster included three papers from the University of Constantine (Beghoul, 2016; Alouache, 2017; Beghoul, 2017); two papers from Ecole Normale Supérieure de Constantine, ENSC (Nouioua, 2009; Boudersa, 2021); and finally, one paper from the University of Oran (Belkheir, 2021). The distribution of papers in the first cluster ensures a diversity of views from different higher education institutions, which promotes the generalizability of the findings of this study. The second cluster included one paper from Batna University (Hellalet, 2007), one paper from the University of Oum El Bouaghi (Gueroui, 2016), and two papers from Saida University (Ghounane, 2019; Ghounane & Rabahi, 2021). It is noteworthy that the papers in this cluster are recent and up-to-date, which ensures the validity and reproducibility of the results presented in this paper. The said categorisation of research papers is further illustrated in Table 1 below.

Table 1. *Categorisation of papers' potency per university*

Cluster 1. Pronunciation syllabi and instruction methods	University of Constantine	Beghoul (2016) Beghoul (2017) Alouache (2017)
	Ecole Normale Supérieure de Constantine, ENSC	Nouioua (2009) Boudersa (2021)
	University of Oran	Belkheir (2021)
Cluster 2. The implementation of ICTs in pronunciation instruction	Batna University	Hellalet (2007)
	Oum El Bouaghi University	Gueroui (2016)
	Saida University	Ghounane (2019). Ghounane and Rabahi (2021)

Data Analysis

Following a systematic review of the literature on the topic, the selected papers were critically analyzed through reading and reflection on their contents, followed by categorization of their findings into themes and common points. As previously indicated, the papers were grouped into clusters by university. The papers within the two clusters were used as a reference to answer the two research questions and test their underlying hypotheses related to both pronunciation instruction and the implementation of ICTs. In the upcoming section, the data resulting from the analysis is shared.

Results

Pronunciation Instruction in Different Universities
University of Constantine

The first article by Beghoul (2016) is entitled *Teaching English Oral Expression and Listening Comprehension at the Department of Letters and English Language, University of Constantine 1: Past and Present Ups and Downs*. The author examines the current syllabi for Oral Expression and Listening Comprehension and proposes alternative syllabi that are more functional and better aligned with other modules, such as phonetics. He argues that the current syllabi are flawed due to the lack of harmony and interaction among linguistic, intellectual, and psychological elements. Phonetics and phonology fall into the first category of elements that should be given more attention. In this regard, the author maintains that the selection, grading, implementation, and assessment of the syllabus content must be revised. The author mentions that very few students succeed in applying what they learn in phonetics to their actual pronunciation, as the current syllabus utilizes inadequate teaching methods that predominantly focus on drilling the transcription of isolated lexical units. Prioritising the accurate instruction of phonological and phonetic dimensions over the present instruction, he adds that *"a component such as vocabulary ought to be of the least importance [...]. What is of primary importance are the phonological and phonetic rules"* (p. 104). Furthermore, the author suggests approaching the module differently, where sessions taking place in the laboratory must be dedicated exclusively to experiential practice, while traditional classroom sessions must be devoted to equipping students with the necessary theory. Finally, for the assessment, he recommends using a written-aural evaluation supplemented by an oral tête-à-tête. Overall, the author emphasizes the importance of proper coordination between phonetics teachers and those of Oral Expression.

The second article by the same author (Beghoul, 2017), entitled *Using the International Phonetic Alphabet in Teaching English Oral Production and Reception to Algerian Learners as a Potentially Efficient Solution to the Sound Spelling Incoherence,* casts a spotlight on the main difficulties that EFL learners face, and suggests a slight alteration to syllabi to solve those problems. The first hurdle is the incoherence between sound and spelling. Beghoul reinforces his stance by citing Hanna (1971), which illustrates that the severity of the sound-spelling inconsistency dilemma is mitigated by research findings indicating that, in a corpus of 17,000 words, 84% of the words are spelled following a regular pattern. Notably, the inconsistency primarily pertains to functional words that have a higher frequency than content words. The article also highlights such difficulties as the transfer from French to English that results in arrhythmic pronunciation, as well as the lack of phonemic awareness among students. Moreover, to investigate the root of these problems, Beghoul (2017) analyzed seven school books (namely, Spotlight on English, Second English Course Book, Spotlight on English Book Three, On the

Move, Crossroads, Getting Through, and *New Prospects*). This analysis revealed a significant problem in the initial introduction to pronunciation and the IPA in the early stages of EFL learning. Ultimately, the researcher emphasizes the need for revised instructional methods that utilize the IPA in various modules, as the current use of IPA falls short in realizing its full potential as a tool for refining pronunciation.

The final study from Constantine University is a doctoral thesis entitled *"The Misuse of Speech Rhythm Components by Undergraduate Students: The Case of the Interlanguage of Third-Year Students of English at the University of Mentouri, Constantine"* by Alouache (2017). As the title suggests, this paper presents a case study that examines the misuse of speech rhythm components within the context of language interference between Algerian Arabic, Standard Arabic, French, and the English language. While this may seem irrelevant at first glance, the author describes the current phonetics syllabi for first-year and second-year students at Constantine University and proposes an alternative. After providing rich data that showcase the speech rhythm issues that students face in the two modules of oral expression and phonetics, she proposes two syllabi that address those weaknesses. The proposed syllabi target both the perception and production of the English language. It is perception in phonetics, and its production in Oral Expression. The researcher made the two syllabi contingent and well aligned in a way that (1) facilitates the coordination between teachers of phonetics and those of Oral Expression, and (2) grades the selected content from foundational to more intricate linguistic elements to scaffold further and assist learners. In conclusion, Alouache (2017) highlights the imperative need for syllabus adjustments in phonetics and Oral Expression to address speech rhythm challenges and enhance students' aural-oral skills.

Ecole Normale Supérieure de Constantine (ENSC)

From ENSC, an article by Boudersa (2021), entitled "Investigating the Teaching Practices of Algerian EFL Teachers in Phonetics and Phonology: Focus on Pronunciation Models," investigates the model of pronunciation, specifically Received Pronunciation versus General American, used as a reference model in phonetics and phonology classrooms at ENSC, utilizing a questionnaire distributed to eight phonetics teachers. The researcher sheds light on multiple issues that both students and teachers encounter when selecting one model of pronunciation. Among these is the fact that students are more exposed to General American (GA) English outside the classroom, and that most teachers would prefer to teach in the manner they were taught, i.e., using Received Pronunciation (RP). Moreover, unlike Oral Expression teachers, phonetics teachers do not assess students' speaking (pronunciation practice), but rather their knowledge of the pronunciation system through written exercises (theoretical knowledge). Notably, a fascinating insight that the researcher successfully underscores is that most students manifest an inability to distinguish between RP and GA, and that they typically employ a mixture of both in their speech, as well as in their writing and transcription. In the end, Boudersa draws attention to the gravity of the issues related to the models of pronunciation, as ENSC is a Teachers' Training College, catering to prospective teachers of EFL who require a profound and sound knowledge of the English language's pronunciation systems.

From the same university, ENSC, a research paper by Nouioua (2009) was published under the title "Teaching Phonetics and Phonology of English: Theoretical Knowledge or Actual Practice?" In this article, the researcher identifies two central problematic dilemmas within current phonetics and phonology instruction and syllabi: language-related and psychology-related issues. The first entails that teachers fail to focus on accuracy and correctness, and instead

emphasize communication and intelligibility, despite teaching English majors. The second problem entails that most teachers avoid teaching pronunciation due to their belief that adults past the Critical Period, posited by Penfield and Roberts in 1959, cannot acquire a native-like pronunciation of L2. Moreover, on the actual practices in Algerian higher education institutions, Nouioua (2009) argues that since there is a wide range of resources and materials available for both students and teachers, one would *"assume that the English language learner must be but a native-like speaker about accent"*(p. 11), however, that contradicts reality as most EFL students do not perceive phonetics as a module that helps them sharpen their articulatory skills, but rather as a means to boost their yearly average. Furthermore, the researcher highlights that phonetics and phonology instruction in Algerian higher education institutions provides students with a "significant theoretical framework of the English sound system [...]"; however, it fails at producing speakers of English with considerable proficiency and pronunciation (2009, p. 12). After a well-structured and analytical presentation of his points, the author proposes solutions that would enhance students' pronunciation. The first solution involves reviewing and updating the objectives of phonetics and Phonology, as the current ones are too theoretical and fail to engage learners effectively unless accompanied by practice. Additionally, phonetics objectives should be rewritten in accordance with those of Oral Expression to ensure a balance between theory and practice. The two modules should ideally have the same teacher, as this would facilitate tracking the students' progress. The last solution would be to design a phonetics textbook for university students, ensuring that all parties involved in the educational process are well-informed about the syllabus and its contents. To conclude, Nouioua's article highlights the gap within phonetics and phonology instruction, calling for a strategic overhaul that aligns both theory and practice, with the hope of producing more articulate students.

Ecole Normale Supérieure d'Oran (ENSO)

The last paper authored by Belkheir (2021) titled *Teaching EFL speaking skills: What status to grant to pronunciation and listening instruction* explores in-depth the status granted to pronunciation and listening instruction through a semi-structured interview probing seventeen (17) teachers of phonetics and Oral Expression from ENSO and the University of Mostaganem. The researcher directs attention to pivotal points: syllabus description, pronunciation instruction, and materials used, among others. First, regarding the syllabus used in phonetics and Oral Expression instruction at both institutions, most informants confessed to the absence of an official written document that indicates the content and aims of the modules. While some informal syllabi do exist among teachers, they lack validation and coordination. Generally, the primary aim of most phonetics teachers is to help students recognize and describe target sounds, thereby improving their pronunciation. Furthermore, there is a limited focus on teaching listening skills due to the lack of equipment, among other reasons. Unfortunately, this paper revealed a significant gap in both intra-coordination with other phonetics teachers and inter-coordination with teachers of Oral Expression. Regarding the materials used in pronunciation instruction, only a small percentage (35%) of teachers utilize ICTs, primarily due to limited experience with technology and restricted access to ICTs within their institutions. Ultimately, in his article, Belkheir offers an incisive exploration into the intricacies and challenges within the syllabi and instruction of pronunciation in two higher education institutions, calling for proactive measures to realign and enrich them.

Table 2 summarises the key findings and points that the six aforementioned papers have in common. These results were derived through a qualitative content analysis, in which each paper was carefully read and analyzed for the presence, absence, or omission of specific themes, identified through inductive coding during the content analysis of each paper. The percentages reflect the proportion of papers that mentioned or did not mention each aspect.

Table 2. *Key findings related to phonetics instruction in different universities*

Theme	Yes %	No %	Not Mentioned %
Official Syllabus	0%	33%	67%
Overloaded Syllabus	50%	0%	50%
Theory Over Practice	83%	17%	0%
Intelligibility Over Accuracy	83%	0%	17%
Inter-Coordination	0%	67%	33%
Intra-Coordination	0%	67%	33%
Pronunciation Prioritised	17%	83%	0%
Written Assessment	33%	0%	67%
Official Textbook	0%	33%	67%
Alternative Syllabus	83%	17%	0%

Note. Percentages are based on the qualitative analysis of six Algerian studies. Each theme was coded as Yes (explicitly present), No (explicitly absent), or Not Mentioned (not addressed).

The Implementation of ICTs in Different Universities
University of Batna

The first paper in this category is a master's thesis authored by Hellalet (2007), titled "Introducing Audio-Visual Aids in Teaching Phonetics to First-Year Students." *The case of first-year English students at Batna University.* The central focus of this research paper was to investigate the effectiveness of introducing laboratory teaching as a part of the pronunciation instruction in Batna University to improve students' aural-oral proficiency. After distributing a questionnaire to students, the majority reported limited implementation of ICTs in the classroom, primarily restricted to the use of audio tapes. Moreover, regarding the necessity of a language laboratory, an overwhelming 89% of respondents acknowledged its importance in enhancing pronunciation learning. After examining the students' questionnaire, the spotlight shifts to the teachers' questionnaire. When asked about their implementation of Audio-Visual Aids (AVA) in their pronunciation instruction, half of the teachers reported occasional use restricted to audio tapes. Additionally, most of the teachers stated that they use classical methods in their pronunciation instruction, which might be the reason for them arguing that allotting 03 hours a week is insufficient to cover the contents of the module, provide formative assessment, and feedback for each individual. Hellalet also asked teachers to identify some difficulties that their students encounter in learning pronunciation and to describe the activities they use as solutions. The teachers unveiled a variety of language-related hurdles, many of which could potentially be addressed through AVA. Inevitably, when asked about laboratories and their efficiency in addressing these issues, 100% of the respondents asserted that laboratory sessions, in terms of achieving module objectives, are more time- and energy-efficient than classical classroom sessions. In conclusion, this research paper thoroughly examines the implementation of AVA

and specialised language laboratories in pronunciation instruction, supported by both students' preferences and the potential of these tools to enhance aural-oral proficiency.

University of Oum El Bouaghi

From the University of Oum El Bouaghi, a Master's degree thesis submitted by Gueroui (2016) titled *Students' and Teachers' Perception of Authentic Subtitled Audio-Visuals for Improving EFL Students' Pronunciation: The Case of First-year students at L'arbi Ben M'hidi University* casts a spotlight on the use of authentic bimodal subtitles in the phonetics and Oral Expression classroom to improve students' pronunciation. The researcher found that most students perceive their pronunciation level as average, and that their primary goal in language learning is to achieve intelligibility rather than accuracy and fluency. Furthermore, students stated that the most difficult sound units to pronounce are those containing diphthongs and triphthongs, and that the top strategies they use to enhance their pronunciation skills autonomously, prioritised in this sequence, are the following: listening extensively to authentic English, watching movies, and imitating native speakers; all of the respondents said they use subtitles when watching movies, 72% lean towards using bimodal subtitles (English) and the rest showed a preference of standard subtitles (Arabic or French). When asked whether their teachers used bimodal subtitled movies in the classroom, the overwhelming majority asserted that this was rare, and that they believed bimodal subtitled movies to be a helpful strategy. Moving on to teachers of phonetics, they accentuated the importance of pronunciation. However, they declared that it is not the central focus in their classrooms as they prefer to focus on the description of articulation. Additionally, some teachers reported that they occasionally use bimodal subtitled movies in their classrooms; however, the rarity of this practice is attributed to a lack of equipment and insufficient time allocated. To conclude, Gueroui highlights the use of authentic bimodal subtitles as an effective strategy to address students' pronunciation challenges and enhance their overall aural-oral proficiency.

University of Saida

The first study from Saida University was carried out by Ghounane (2019). It is titled "The Attitudes of Second-Year EFL Students at Dr. Moulay Tahar University towards Learning English Pronunciation through Mobile-Assisted Language Learning." In her study, Ghounane pursues two primary aims: (1) to examine the perspectives of both teachers and students towards the use of Mobile Assisted Language Learning (MALL), and (2) to prove the efficacy of MALL integration in phonetics classes at Saida University. To experiment, the researcher primarily used the following three mobile applications: Sounds: The Pronunciation App, Stress Training App, and BBC English Listening App. Notably, throughout the experiment, the experimental group outperformed the control group and exhibited higher motivation. The first application helped students learn and practice articulating some English sounds, primarily through reading the transcribed form of words, writing them down, and then listening to a native pronunciation. Despite this activity revealing problems in distinguishing sounds such as /tʃ/ and /k/, vowels like /ɔː/ and /ɒ/, and the use of various diphthongs, 93% of the students expressed positive attitudes towards the activity. Moreover, the second part of the experiment, involving stress placement rules, posed a greater challenge to 64% of the students. However, following the introduction of the second mobile application, over 90% of them exhibited better proficiency in primary and secondary stress placement. The final stage of the experiment consisted of reading and recording passages, listening to native speakers read them, and then rereading and recording for the post-

test after detecting and correcting their own mistakes. Overall, the students' performance increased from 51% to 72% in pronunciation, their stress placement skills went from 45% to 62%, and their intonation went from 48% to 64% after the experiment.

Shifting our focus to the teachers' interviews, the researcher used six questions to generate valuable insights from teachers regarding the integration and effectiveness of mobile learning in their lectures. Notably, the great majority of teachers endorsed the implementation of technology in Algerian higher education institutions, stating that they are actively trying to do so. Others, however, expressed objections due to time constraints and overloaded syllabi. Furthermore, when asked about their attitudes towards the possibility of the official introduction of MALL to Algerian curricula, 70% of the informants maintained that Algerian policymakers and stakeholders should give the green light to the development of new MALL materials that can be integrated in the language classroom; even so, 30% of them stated that they will find it challenging to shift from traditional pronunciation teaching approach to a more technology-driven approach. In conclusion, the researcher highlighted an under-researched area in the Algerian context and generated fascinating insights that can help the Ministry of Higher Education in renovating the curricula destined to teaching pronunciation across Algeria.

From the same university, another article by Ghounane and Rabahi (2021), published under the title "The Use of Computer-Assisted Pronunciation Training in Teaching English Pronunciation for First-Year EFL Students at Saida University," sheds light on the effectiveness of Computer-Assisted Pronunciation Training (CAPT) in improving English pronunciation in the Algerian context. The authors conducted a comprehensive literature review that highlighted that the syllabi of phonetics were designed to be rich in theory and to allow little to no practice. In addition to that, the teachers responsible for the module typically use traditional methods even when access to a laboratory is available, and perhaps that is due to a lack of mastery of the pedagogy of phonetics and pronunciation. This tendency also results in preparing students *"to pass exams rather than developing a strategy that may help to improve their oral proficiency"* (p. 77). Finally, it is noteworthy that phonetics exams are conducted in a written form, which provides no opportunity to rectify students' pronunciation skills. On a more methodological note, a six-month pre- and post-test approach was implemented with two groups of first-year students using Pronunciation Coach 2 software. Throughout the experiment, the experimental group demonstrated greater motivation and exhibited an optimized mastery of diphthongs, as well as improved recognition of long and short vowels, at 83%. In contrast, the control group struggled in these areas. In the post-test, the control group increased from 31% to 38%, while the experimental group improved from 33% to 65%. Ultimately, the findings showed that CAPT indeed "provides a native-like environment where students can learn" (p. 82) and is effective in enhancing learners' pronunciation.

Ultimately, after reviewing *the cluster 2 papers that investigated the implementation of ICTs in pronunciation instruction, the researchers conducted a qualitative thematic analysis, identifying recurring patterns and trends related to the integration of ICTs*. The findings were coded based on whether the theme was explicitly addressed in the papers or not, and then used to generate the frequency of their occurrence. Table 3 below summarises the key findings of the studies.

Table 3. *Key findings related to the implementation of ICTs in different universities*

Aspect	Yes %	Not Mentioned %
ICTs Neglect	100%	0%
Syllabi Are Overloaded	50%	50%
Lack of Practice	100%	0%
Positive Students Attitudes	100%	0%
Positive Teachers Attitudes	100%	0%
ICTs Are Necessary	50%	50%
ICTs Foster Motivation	50%	50%
ICTs Allow Practice	100%	0%
ICTs Improve Aural-Oral Proficiency	100%	0%

Discussion

How Pronunciation Is Taught in Algerian Universities

Upon a thorough analysis of the papers referenced in this study, the researchers identified several shared themes among the six papers (see Table 2). One of the key findings is that 30% of the papers underscored the absence of an officially validated phonetics syllabus. A cross-analysis of the elements present in the provisional syllabi revealed notable similarities, particularly in the following points: articulatory phonetics, sounds (consonants, Vowels, and Diphthongs), syllables, and word stress. Moreover, 50% of the papers noted syllabus overload, emphasizing an imbalance between theory and practice, as 83% of the researchers testified to the prioritization of theory; consequently, pronunciation practice is often ignored or deprioritized. Remarkably, despite the sample across the studies being students majoring in English, most concluded that intelligibility is typically chosen over accuracy and correctness of articulation. Many papers (67%) highlighted the deficiency in the inter- and intra-coordination among teachers and pinpointed the disharmony and misalignment across modules dealing with oral skills (phonetics, Oral Expression, and Speaking Comprehension). Furthermore, 100% of the papers claimed the prevalence of traditional methods of pronunciation instruction, including the implementation of written assessment. Interestingly, due to the lack of an official syllabus and textbook for the module, 83% of the researchers suggested an alternative syllabus that balances practice and theory, aiming to enhance students' aural-oral skills.

In summation, a brief answer for the first research question (What is the state of pronunciation instruction in the three higher education institutions of Constantine 01, ENS Constantine, and ENS Oran?) would be that pronunciation instruction is taught using traditional methods based on drilling and dictation, with very little attention to practice, resulting in a myriad of issues in pronunciation.

Implementation of ICTs in Phonetics Teaching in Algerian Universities

To address the second research question ("Is technology implementation helping mitigate obstacles and challenges in the teaching process?"). The researchers conducted a comprehensive review of the four studies centered on ICT implementation in the Algerian university context. The review resulted in Table 3, which briefly demonstrated ten (10) salient themes that reoccurred through the majority of papers. Across the papers, spanning from the oldest (Hellalet, 2007) to the latest (Ghounane & Rabahi, 2021), three recurrent reasons were brought to the forefront to justify the neglect of ICTs: teachers' limited technological dexterity, the lack of materials and equipment, and the overloaded syllabi combined with time constraints. Echoing

the findings generated from the first cluster of papers, an overwhelming 100% of the studies indicated a lack of practice and prioritization of theory, resulting in inaccurate pronunciation. Moreover, Ghounane (2019) and Gueroui (2016) investigated students' and teachers' attitudes towards the integration of ICTs and AVA in phonetics classrooms to enhance pronunciation. The findings revealed positive attitudes among participants. In Ghounane's (2019) study, 86% of the participants exhibited positive attitudes, while 14% expressed negative attitudes. Gueroui (2016) reported that 80% of the students and teachers were satisfied with the integration of ICTs and AVA in phonetic classes. In contrast, the remaining 20% expressed a fear of the shift towards a technology-driven teaching and learning environment. Additionally, the majority of researchers conducted experiments that integrated ICTs to measure their impact on students' proficiency. Unsurprisingly, ICTs proved efficient and necessary in improving students' aural-oral skills and motivation, as they allowed for greater room for practice and engagement. For instance, in Ghounane (2019), subjects improved their overall pronunciation by 72.63%, stress placement by 45.26%, and intonation by 32.61%, permitting teachers to provide more personalised feedback. All in all, perhaps the innovation of a technology-based curriculum is much needed to mitigate the problems that pronunciation instructors and students face.

However, it is imperative to acknowledge that the challenges in implementing ICTs in some cases cannot always be attributed to the previously mentioned reasons, as there are many others. For instance, one critical reason is learners' age; young learners tend to exhibit greater neuroplasticity, making them more capable of developing accurate pronunciation. University students, on the other hand, often have less flexibility and are therefore less likely to acquire accurate pronunciation with ease. Additionally, time constraints pose a significant problem, as phonetics is allotted only 1.5 hours weekly, which is insufficient for meaningful practice, let alone integrating ICT tools and providing individualized feedback. Furthermore, not all lessons are compatible with the use of ICTs; some lessons are rooted in deep linguistic theories and are better delivered through direct explanation and discussion. These limitations suggest that the implementation of ICTs must be thoughtfully considered with careful consideration of cognitive, institutional, and pedagogical factors.

Conclusion

Phonetics is an extensive body of knowledge that, if harnessed appropriately, yields the potential to improve one's pronunciation and overall language proficiency. In this study, the researchers have reviewed and analyzed ten (N=10) research studies conducted across several Algerian higher education institutions, investigating problems in the current pronunciation syllabi and instruction methods, alternative approaches that can minimize those problems, and the potential of implementing Information and Communication Technologies (ICTs) as a promising solution. The findings of this study serve as evidence of the urgent need for new curricula to be implemented across Algerian higher education institutions, ensuring harmonized instruction of the module.

The findings of this research paper confirm that pronunciation instruction is traditional, and that, combined with such factors as the absence of an official syllabus, the syllabus overload, and the inclination towards more theory over practice, have all been signalled as the leading causes for students' static pronunciation and lowered overall aural-oral proficiency. As for the implementation of ICTs, while all the reviewed papers reported that ICTs provide opportunities to practice pronunciation and their efficiency to improve aural-oral proficiency, only half of the

papers (Ghounane, 2019; Ghounane & Rabahi, 2021) investigated the motivational impact of ICTs and questioned the necessity of implementing ICTs in teaching pronunciation.

While this study offers an overview of pronunciation instruction and syllabi, as well as the potential solution of integrating ICTs, other important factors should not be dismissed. Time constraints, for example, remain a significant issue since pronunciation modules are allotted a weekly volume of one and a half to/ three hours, limiting opportunities for ICTs use and effective pronunciation practice. Additionally, the age factor plays a significant role in students' mental flexibility and ability to develop accurate pronunciation. It is also noteworthy that not all lessons are suitable for ICTs or AVA integration, particularly those that rely heavily on theoretical content.

Ultimately, as this study is purely descriptive in its approach, the researchers call for more empirical and practical studies that investigate the identified issues and develop actionable strategies to mitigate problems. Of course, ultimately, this study serves as an exhaustive collection of reviews of the relevant literature, which can be utilised as a frame of reference guiding future studies addressing this field.

Recommendations

This study investigated pronunciation teaching practices in the two phonetics and oral expression modules across different Algerian higher education institutions and explored the potential of ICTs in improving instruction. Based on the findings of the present research study, the researchers offer the following recommendations to both instructors and policymakers to enhance learners' pronunciation and oral proficiency. First, it is essential to document and standardise module syllabi across higher education institutions to ensure equal learning opportunities. These syllabi should include clearly defined objectives targeting pronunciation skills and intelligibility. Accordingly, assessment practices should be updated beyond written exams to include more oral performance tasks, presented digitally, and evaluated through rubrics focusing on segmental, suprasegmental, and prosodic features. In addition, lessons should strike a balance between theory and practice by reducing the overemphasis on theoretical content and increasing hands-on activities. To support this balance and allow for meaningful practice, it is recommended to increase the allotted time for the module, as one and a half hours/ three hours per week is insufficient for skill development and ICTs integration. As shown throughout the paper, improving access to ICTs and AVA would support more language exposure and more opportunities for guided and free practice. Moreover, since the quality of instruction is highly influenced by the teachers themselves, it is logical to offer them training and support on pedagogical, technology-related, and content-related matters. Furthermore, it is recommended that instructors collaborate and coordinate with one another, including both same-module teachers and teachers of modules that complement each other, such as phonetics and oral expression. Finally, it is vital to promote positive attitudes towards pronunciation instruction and the integration of ICTs in Algerian higher education institutions among both teachers and students. As current instruction practices have proven to fall short of equipping learners with the necessary pronunciation skills, reform is needed to update syllabi and instructional technologies, among other aspects. In light of the findings, implementing these recommendations is crucial for fostering more effective, modern, and communicative pronunciation instruction.

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AI Statement

This document has benefited from the application of AI-driven tools, including Grammarly, to refine its linguistic aspects. These tools were utilized to correct grammar and spelling and improve the overall writing style. It is acknowledged that the use of these technologies may introduce specific AI-generated linguistic patterns. However, the core intellectual content, data interpretation, and conclusions presented remain the sole work of the authors.

Statement of Absence of Conflict of Interest

The authors declare that there are no conflicts of interest related to the research, findings, or recommendations presented in this paper. All conclusions drawn are independent and unbiased.

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