

IMPROVING THE METHODOLOGY FOR DEVELOPING PHONETIC COMPETENCE IN NON-PHILOLOGY STUDENTS IN THE CONTEXT OF DIGITALIZATION: THE CASE OF ENGLISH

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Abstract

The digital transformation of higher education has expanded the range of tools available for teaching English pronunciation, yet access to technology alone does not guarantee the development of intelligible, confident, and context-appropriate speech. This article examines ways to improve the methodology for developing phonetic competence among students whose majors are not philology. The study is conceptual and analytical: it synthesizes methodological literature on foreign-language teaching, pronunciation instruction, learner autonomy, and technology-enhanced learning, and translates this literature into a structured pedagogical framework suitable for non-language-specialist university programmes. Phonetic competence is treated as an integrated capacity involving segmental accuracy, word stress, rhythm, intonation, perception, production, self-monitoring, and intelligibility in professional communication. The proposed framework combines diagnostic assessment, explicit modelling, focused perception practice, guided production, recording-and-comparison tasks, communicative transfer, and formative feedback. Digital tools—including pronunciation dictionaries, speech recording, spectrograms, learning-management systems, and speech-recognition applications—are positioned as supports for practice rather than substitutes for teacher judgement. Particular attention is given to the risk of overemphasizing accent imitation, relying uncritically on automated scores, and using digital activities without a clear learning outcome. The article argues that an effective methodology should be needs-based, short-cycle, discipline-sensitive, accessible, and measurable. It proposes a set of indicators for evaluating progress and outlines implementation principles for blended and classroom-based instruction. Since the article does not report a new empirical intervention, the framework should be understood as a literature-informed proposal requiring validation through classroom research.

1. Introduction

English communication is increasingly important in higher education, professional mobility, international collaboration, and access to academic information. For students in engineering, economics, medicine, law, pedagogy, agriculture, and other non-philological fields, English is often studied as a practical instrument for professional and academic interaction rather than as an object of linguistic specialization. These students may need to present a project, explain a procedure, participate in an online meeting, ask questions at a conference, or understand spoken instructions. In such situations, pronunciation is not merely an aesthetic feature of speech: it can influence

intelligibility, listener effort, confidence, and the success of communication.

Phonetic competence is broader than the ability to articulate individual sounds. It includes perception and production of vowels and consonants, syllable structure, word stress, sentence stress, rhythm, connected speech, intonation, and the ability to adjust speech to communicative purpose. A learner may pronounce individual sounds reasonably well but still be difficult to understand because stress placement obscures a word, sentence rhythm is strongly influenced by the first language, or intonation does not signal the intended meaning. Pronunciation

instruction should therefore connect segmental features with suprasegmental features and communicative use.

For Uzbek-speaking learners of English, the relationship between the sound systems of Uzbek and English is an important pedagogical consideration. Differences in vowel contrasts, consonant realizations, stress patterns, reduction, and the rhythm of connected speech may create recurring learning difficulties. These patterns should not be treated as deficiencies of learners; they are predictable consequences of acquiring a new phonological system through an existing linguistic repertoire. Instruction is more productive when it identifies which features most affect understanding and offers focused practice rather than attempting to eliminate every trace of a learner's accent.

Digitalization creates new possibilities for such practice. Learners can listen repeatedly to authentic or carefully selected models, slow down audio, record their own speech, compare versions, use visual displays of speech, consult pronunciation dictionaries, and receive automated feedback. Learning-management systems can organize practice beyond the classroom, while mobile devices can support short, repeated learning episodes. At the same time, digital environments introduce methodological risks: learners may imitate isolated sounds without transferring them into meaningful speech, mistake automated scores for definitive judgements, or spend time on attractive applications that are not aligned with course outcomes.

The central problem addressed in this article is therefore not whether digital tools should be used, but how they can be integrated into a coherent methodology for students who have limited instructional time and diverse professional goals. Non-philology students often have fewer contact hours for English than language majors. Consequently, phonetic activities need to be efficient, relevant to professional communication, and feasible for independent practice. The teacher's

role shifts from providing all practice directly to designing tasks, modelling strategies, interpreting feedback, and helping learners transfer controlled pronunciation into spontaneous speech.

The purpose of the article is to develop a literature-informed methodological framework for improving phonetic competence among non-philology students in the context of digitalization, using English-language instruction as the case. The article addresses four questions: (1) which components of phonetic competence should be prioritized for this learner group; (2) how digital tools can support the stages of pronunciation learning; (3) how classroom and independent activities can be connected; and (4) which indicators can be used to monitor progress without reducing pronunciation to a single score.

The contribution is practical and conceptual. It brings together principles from Uzbek-language methodological scholarship and international pronunciation research, then organizes them into a staged teaching cycle and a set of assessment indicators. The framework is intended for adaptation by university English instructors and programme designers. It is not presented as a tested intervention or as evidence of a statistically significant effect; empirical validation remains a necessary next step.

2. Materials and Methods

The article uses a conceptual review and methodological synthesis rather than an experimental design. The materials comprise methodological works on foreign-language teaching published in Uzbekistan and the wider post-Soviet tradition, together with international scholarship on pronunciation, intelligibility, communicative language teaching, and technology-enhanced language learning. The review is selective rather than systematic: it is intended to identify principles relevant to instructional design, not to claim exhaustive coverage of every publication in the field.

The analysis followed four steps. First, key constructs were defined, distinguishing phonetic competence from isolated pronunciation accuracy and from the broader communicative competence in which pronunciation operates. Second, recurring principles were extracted from the literature: explicit learning goals, aural discrimination before or alongside production, focused practice, meaningful communication, learner reflection, and feedback. Third, these principles were mapped against affordances and limitations of digital tools. Fourth, the resulting elements were assembled into a staged framework that can be implemented in a general English course for non-philology students.

The methodological synthesis was guided by three criteria. Relevance refers to whether an activity supports a clearly identified pronunciation or communication outcome. Feasibility refers to whether students can complete it with common devices and limited time, including where internet access or specialist equipment is inconsistent. Transfer refers to whether a skill practised in isolation can be used in a phrase, dialogue, presentation, or professional task. An activity that is technologically sophisticated but fails these criteria should not be prioritized.

The proposed framework assumes a blended environment, but it does not require a particular commercial platform. A teacher may use a learning-management system, a messaging channel, a shared audio folder, or a university platform to distribute short tasks and collect recordings. Pronunciation dictionaries and trusted model recordings can provide input; a phone or computer can capture learner speech; waveform or spectrogram software may support selected visual comparisons; and speech-recognition tools may offer supplementary information. The choice of tool should be based on accessibility, privacy, reliability, and pedagogical purpose.

The analysis also distinguishes evidence from proposal. Claims about pronunciation learning are grounded in the cited literature, while the sequence, task examples, and indicators presented

below are the author's synthesis and recommendations. No participants were recruited, no intervention was administered, and no learner recordings or numerical outcome data were collected for this article. Accordingly, the Results section reports the analytical outcomes of the synthesis and the structure of the proposed methodology, not empirical treatment effects.

3. Results

3.1. An integrated model of phonetic competence

The synthesis supports an integrated model with six connected components: (1) sound perception and discrimination; (2) segmental production; (3) word stress and syllable awareness; (4) rhythm, connected speech, and sentence stress; (5) intonation and pragmatic meaning; and (6) self-monitoring and intelligibility in communication. These components should not be taught as unrelated units. Perception informs production, word-level practice prepares learners for phrases, and controlled production should lead toward meaningful spoken tasks.

For non-philology students, priority should be determined by communicative impact rather than by the number of phonetic features covered. The teacher can begin with a diagnostic task: students listen to a short model, identify key words, read a brief professional text aloud, and record a short response to a familiar question. The purpose is not to label students as good or poor speakers. It is to identify a small number of high-value targets, such as a vowel contrast that changes meaning, stress in frequently used professional terms, consonant endings that affect word recognition, or sentence stress that obscures the main message.

Intelligibility provides a useful organizing principle. The goal is not to require learners to imitate a particular native-speaker accent. Instead, learners should develop pronunciation that allows intended meaning to be understood with reasonable listener effort in relevant contexts. This orientation accommodates legitimate accent variation while

preserving a clear expectation that learners will work on features that repeatedly interfere with communication.

3.2. A six-stage digital-supported teaching cycle

Stage 1: diagnosis and goal setting. The teacher gathers a brief baseline sample and helps each learner select one or two priorities. Students should understand why a target matters and what successful performance sounds like. A simple learning record can include the target, a model, an initial recording, and a self-rating. Goals should be observable—for example, placing stress correctly in a set of course-related terms—rather than vague, such as “improve pronunciation.”

Stage 2: focused listening and noticing. Learners listen to short models and attend to one feature at a time. They may identify which word is stressed, distinguish two sounds, mark thought groups, or compare rising and falling intonation. Repeated listening, controlled playback speed, and visual highlighting can support noticing, but the teacher should avoid slowing speech so much that natural rhythm becomes distorted. A brief explanation connects the sound pattern to meaning.

Stage 3: explicit modelling and articulatory guidance. The teacher demonstrates the target and, where useful, explains tongue position, voicing, lip shape, syllable structure, or stress placement. A short video or diagram may be used before class, leaving class time for listening and speaking. Visual explanations are supplementary: students still need to hear the contrast and test it in their own production. For difficult contrasts, the instructor can use minimal pairs, but these should quickly be placed in phrases and meaningful sentences.

Stage 4: controlled production and recording. Learners repeat words, phrases, and short sentences, then make a recording on a phone or computer. They listen to the model and their own version in sequence, noting one successful feature and one point for improvement. Recording is

useful because it makes speech available for reflection after the moment of speaking. However, students should not be asked to compare every detail at once; one target per recording keeps the cognitive load manageable.

Stage 5: communicative transfer. Learners use the target feature in a realistic task: explaining a process, giving directions, introducing a project, summarizing a chart, asking a question, or delivering a short professional update. This stage tests whether practice transfers beyond repetition. Pair work and role-play can make the task communicative, while short audio submissions allow asynchronous participation. The teacher should evaluate message clarity as well as the selected phonetic target.

Stage 6: feedback, reflection, and recycling. Feedback can come from the teacher, peers using a clear checklist, self-comparison, and selected automated tools. Students update their learning record and revisit the target in a later task. A target should be considered provisionally stable only when it appears in more than one context, not merely when a learner succeeds in a single repetition exercise. Recycling at spaced intervals helps prevent the skill from disappearing after the unit ends.

3.3. Matching digital tools to learning goals

Digital tools are most effective when their function is explicit. Audio playback supports repeated listening; recording supports self-observation; pronunciation dictionaries provide model pronunciations and stress information; visual displays may help learners notice duration, pauses, or pitch movement; learning platforms organize task sequences and feedback; and speech-recognition systems may help learners notice whether a system recognizes an utterance. These tools offer different kinds of evidence and should not be treated as interchangeable.

Automated speech recognition can be useful for additional practice, but recognition accuracy varies by accent, microphone quality, background

noise, speaking rate, and the system's training data. A transcript or score is therefore an imperfect indicator of pronunciation quality. A system may recognize an utterance despite a phonetic error, or fail to recognize a clear utterance because of noise or model limitations. Teachers should use automated feedback as a prompt for investigation, not as the sole basis for grading.

Visual feedback should also be selective. A waveform can reveal pauses and timing, while a spectrogram can illustrate acoustic differences for learners who have been shown how to interpret it. Yet visual complexity can distract from communicative learning if students are expected to interpret technical displays without sufficient guidance. In many general English courses, a clear audio model, a short recording, and a structured reflection checklist may provide more educational value than specialist software.

3.4. Proposed assessment indicators

The framework recommends assessment across five dimensions: segmental intelligibility, word stress, sentence-level prominence and rhythm, intonation appropriate to communicative purpose, and self-monitoring/repair. A sixth dimension—task completion—ensures that pronunciation is evaluated within communication. Each dimension can be rated on a four-point descriptive scale: 1 = frequent difficulty that regularly obscures meaning; 2 = inconsistent performance with noticeable listener effort; 3 = generally intelligible with occasional lapses; and 4 = consistently intelligible and appropriate to the task. These descriptors are proposed for adaptation, not claimed as a validated scale.

Assessment should combine a short initial sample, ongoing low-stakes checks, and a later performance on a comparable task. Where feasible, the same prompt or parallel prompts can be used to compare development. Teachers should record brief evidence for ratings and avoid treating a single score as a complete representation of competence. Student self-assessment can be compared with teacher feedback to develop

reflective skills. Peer feedback should focus on observable features and be framed respectfully, avoiding ridicule or accent-based judgements.

3.5. Illustrative lesson sequence

A 25–30-minute pronunciation cycle can be embedded in a regular English lesson. In the first three minutes, the teacher introduces a communication goal and a short model. During the next five minutes, students listen and mark the target feature. The teacher then provides a concise explanation and models examples. Students practise for five to seven minutes, record a short version, and compare it with the model. They next complete a paired or individual professional speaking task of approximately one minute. The final minutes are used for feedback and a short reflection entry. Independent practice can repeat the same cycle in shorter form during the week.

For example, students in an engineering programme might practise stress and thought groups while explaining a simple process; economics students might emphasize comparison and change while describing a chart; medical students might practise clear sequencing while explaining a routine procedure, within the limits of their course and professional scope; and pedagogy students might practise instructions and checking questions. The phonetic target remains explicit, but the communicative content is relevant to the student's field.

3.6. Implementation principles

The synthesis yields seven implementation principles: start from a diagnostic need; prioritize intelligibility; connect listening and speaking; use technology for a defined purpose; progress from controlled practice to professional communication; provide feedback that is specific and actionable; and recycle targets across lessons. Accessibility should be planned from the beginning. Tasks should be short enough for mobile use, downloadable where possible, and not dependent on expensive subscriptions. Where students cannot

submit audio publicly, alternative submission channels or in-class recording should be available.

Teacher preparation is equally important. Instructors need not become acoustic engineers, but they should be able to select reliable models, explain common pronunciation issues, evaluate intelligibility, and interpret automated feedback critically. A shared bank of short models, task cards, assessment descriptors, and reflection prompts can reduce preparation time and make instruction more consistent across groups.

4. Discussion

The proposed framework responds to a tension in technology-enhanced pronunciation teaching: digital resources can increase the amount and flexibility of practice, but they do not automatically create learning. The pedagogical value of a tool depends on the relationship between its affordances and the target skill. A recording app is valuable when learners compare versions against a focused criterion; it is less valuable when students simply upload audio without listening or receiving feedback. Similarly, speech recognition is useful when it encourages learners to examine a phrase, but problematic when an automated score is treated as an objective measure of communicative competence.

The framework is consistent with pronunciation scholarship that distinguishes intelligibility and comprehensibility from native-like accent attainment. For students who use English to participate in academic and professional settings, the most defensible objective is understandable speech and the ability to adapt pronunciation to a task. This objective does not lower standards; it directs effort toward features that affect meaning and listener effort. It also reduces the risk that learners interpret accent difference as personal failure.

The approach also complements general principles in Uzbek methodological literature that emphasize systematic instruction, conscious learning, the relationship between language

material and communicative practice, and the importance of the teacher's organization of learning. For non-philology students, these principles must be translated into limited, repeatable activities linked to their academic disciplines. A discipline-sensitive task can increase relevance, although the instructor should ensure that specialized vocabulary does not overload a pronunciation lesson.

A key implication is that digital pronunciation work should be designed as a cycle rather than as an isolated application-based activity. Diagnosis helps select the target; listening helps learners notice it; modelling clarifies the pattern; recording supports reflection; communication tests transfer; and feedback informs the next cycle. This sequence provides a rationale for using tools and makes learning progress more observable. It can also help students develop autonomy by teaching them how to identify a target, choose a model, record speech, and evaluate a specific feature.

Several limitations must be acknowledged. First, this article presents a conceptual synthesis and has not tested the framework with a sample of Uzbek university students. Second, the proposed assessment dimensions and four-point descriptors require validation for reliability, sensitivity to change, and fairness across proficiency levels. Third, access to devices, stable connectivity, quiet recording environments, and accessible software varies across institutions and learners. Fourth, speech-recognition systems change rapidly, so instructors need to review tool performance and data practices regularly. Finally, pronunciation learning is affected by proficiency, motivation, exposure, anxiety, and instructional time; no single digital method can address all these factors.

Future research should test the framework through classroom-based studies with clearly described participants, course conditions, and learning outcomes. A quasi-experimental design could compare a structured digital-supported cycle with existing instruction, while pre- and post-task recordings could be rated by trained assessors

using transparent criteria. Researchers should report inter-rater agreement, learner perceptions, task completion, and the amount of practice, rather than relying only on automated scores. Qualitative interviews or learning diaries could clarify which tools students find useful and how they use feedback. Studies should also examine whether gains transfer from rehearsed tasks to spontaneous professional communication.

For institutional implementation, a pilot is preferable to immediate large-scale adoption. Departments can begin with one or two target features and a small set of tools, train teachers in the assessment rubric, and review samples of learner work. The results of the pilot can guide revisions to workload, privacy arrangements, accessibility, and course integration. Such a measured approach is more likely to produce sustainable improvement than introducing multiple platforms without a shared instructional design.

5. Conclusion

Improving phonetic competence among non-philology students in the context of digitalization requires more than providing access to pronunciation applications. It requires a coherent methodology that links perception, production, self-monitoring, and communicative use. The literature-informed framework developed in this article proposes a six-stage cycle: diagnosis and goal setting, focused listening, explicit modelling, controlled production and recording, communicative transfer, and feedback with recycling.

The main practical recommendation is to prioritize intelligibility and professionally relevant communication, while selecting digital tools according to a clearly defined learning purpose. Short recordings, reliable audio models, pronunciation dictionaries, structured reflection, and carefully interpreted automated feedback can support independent practice. Teacher guidance remains essential for selecting targets, evaluating progress, and preventing technology from becoming an end in itself.

The framework offers a basis for course design and teacher development, but its effectiveness should not be assumed in advance. Future empirical work should validate the assessment indicators and examine learning outcomes among Uzbek-speaking students across different non-philological specializations. Such research can establish which combinations of digital support, classroom instruction, and independent practice lead to durable improvements in spoken English.

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