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MOBILE-FIRST FONETIKA: EFL KONTEKSTLARIDA SMARTFONLARGA TAYYORGARLIK VA TALAFFUZ KOMPETENSIYASI O'RTASIDAGI NOMUTANOSIBLIK

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Annotatsiya

Universitet talabalari tobora ko'proq raqamli avlod vakillari sifatida tavsiflanmoqda, biroq bu raqamli tayyorgarlik talaffuzni o'rganishning samarali strategiyalariga qanchalik ta'sir qilishi hali aniq emas. Ushbu tadqiqot smartfonlarga egalik qilish darajasi bilan mobil yordamida til o'rganish (MALL) vositalaridan talaffuzni rivojlantirishda samarali foydalanish o'rtasidagi nomutanosiblikni o'rganadi.

Kalit so'zlar: mobil yordamida til o'rganish, talaffuzni o'qitish, IPA, smartfon orqali o'rganish, EFL, raqamli savodxonlik, CALL.

MOBILE-FIRST ФОНЕТИКА: РАЗРЫВ МЕЖДУ ГОТОВНОСТЬЮ К ИСПОЛЬЗОВАНИЮ СМАРТФОНОВ И УРОВНЕМ ПРОИЗНОСИТЕЛЬНОЙ КОМПЕТЕНЦИИ В КОНТЕКСТЕ EFL

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Аннотация

Студенты университетов всё чаще характеризуются как представители цифрового поколения, однако остаётся неясным, трансформируется ли эта цифровая готовность в эффективные стратегии обучения произношению. Данное исследование рассматривает разрыв между наличием смартфонов и эффективным использованием инструментов мобильного обучения языкам (MALL) для развития произносительных навыков.

Ключевые слова: мобильное обучение языкам, обучение произношению, МФА (IPA), обучение с использованием смартфонов, EFL, цифровая грамотность, CALL.

MOBILE-FIRST PHONETICS: THE DISCONNECT BETWEEN SMARTPHONE READINESS AND PRONUNCIATION PROFICIENCY IN EFL CONTEXTS

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Abstract

University students are increasingly characterized as digital natives, yet it remains unclear whether this digital readiness translates into effective pronunciation learning strategies. This study investigates the disconnect between smartphone ownership and the effective use of mobile-assisted language learning (MALL) tools for pronunciation development.

Keywords: mobile-assisted language learning, pronunciation instruction, IPA, smartphone learning, EFL, digital literacy, CALL

The proliferation of smartphones among university students has fundamentally transformed the landscape of language learning. With mobile devices offering unprecedented access to language-learning applications, pronunciation training resources, and instant feedback mechanisms, educators have enthusiastically embraced the promise of mobile-assisted language learning (MALL). Indeed, meta-analytic evidence demonstrates robust effects for MALL interventions, with Mihaylova et al. (2022) reporting a moderate-to-strong overall effect size ($g = 0.88$) across 23 studies. Similarly, automatic speech recognition (ASR) technology specifically designed for pronunciation training shows medium effectiveness ($g = 0.69$), with explicit corrective feedback producing particularly strong results ($g = 0.86$; Ngo et al., 2024).

However, the assumption that smartphone ownership automatically translates into effective pronunciation learning represents what Bennett et al. (2008) characterized as an academic “moral panic”—the uncritical acceptance of the “digital native” hypothesis. Their seminal critique demonstrated that claims about young people’s fundamentally different cognitive processes and innate technological competence lack empirical support. Subsequent research by Ng (2012) found that although undergraduate students could use technologies, they “lacked awareness of educational technology applications” and required guidance for meaningful pedagogical use. This suggests a critical distinction: owning sophisticated hardware does not guarantee the selection of effective software solutions.

The present study investigates this potential disconnect in the specific domain of English pronunciation learning. While MALL research has documented impressive gains when purpose-built pronunciation applications are employed (Fouz-González, 2020; Kholis, 2021; Bashori et al., 2024), less attention has been paid to whether students voluntarily select such tools or default to general-purpose applications with limited pronunciation feedback capabilities. Furthermore, the relationship between theoretical phonetic knowledge—specifically, familiarity with the International Phonetic Alphabet (IPA)—and practical pronunciation confidence remains underexplored in MALL contexts, despite evidence that explicit phonetic instruction significantly enhances pronunciation outcomes (Saito, 2011; Trinh et al., 2022).

This investigation addresses three interconnected research questions:

RQ1 (Infrastructure): To what extent does student hardware ownership match the requirements for AI-assisted pronunciation learning?

RQ2 (Tool Selection): Do students voluntarily select effective pronunciation tools, or do they default to general-purpose applications?

RQ3 (Competency): What is the relationship between theoretical phonetic knowledge (IPA) and practical pronunciation confidence?

By examining these questions within a population of English Philology students—who might be expected to demonstrate above-average linguistic awareness—this study aims to identify the specific gaps between digital readiness and effective pronunciation learning that curriculum designers and educators in similar EFL contexts must address.

2. Literature Review

2.1 Mobile-Assisted Language Learning: Promise and Limitations

The field of mobile-assisted language learning has matured considerably since Kukulska-Hulme and Shield’s (2008) seminal review defined MALL as a distinct field focused on exploiting

mobile-specific affordances rather than simply replicating desktop CALL applications. Subsequent bibliometric analyses have identified five broad MALL research themes: self-regulated learning, learner agency through autonomy, AI-supported personalized learning, learning “in the wild,” and MALL in higher education contexts (Karakaya & Bozkurt, 2022). The theoretical appeal is clear: mobile devices offer portability, context sensitivity, social connectivity, and opportunities for just-in-time learning that fixed computer laboratories cannot provide (Chen et al., 2020).

However, critical voices have tempered this enthusiasm. Stockwell’s (2010) pivotal three-year study comparing vocabulary activities on mobile phones and desktop computers found that, when given a choice, most learners preferred PCs, with mobile activities taking significantly longer and yielding slightly lower scores. His subsequent monograph argued that mobile devices “cannot practically serve as the sole electronic tool for language learning” because of limitations related to screen size, text input, and battery life, advocating instead for mobile learning as “complementary within a ubiquitous learning ecology” (Stockwell, 2022). This suggests that raw device ownership statistics may overstate actual learning utility.

2.2 The Digital Native Critique

The assumption that contemporary students possess innate digital competencies has been systematically challenged. Bennett and Maton (2010) demonstrated significant variation in technology use both within and between age groups, emphasizing that “socioeconomic status, access, and education matter more than birth year” in determining technological competence for learning. Critically, their research distinguishes between using technology for entertainment and using it strategically for educational purposes—a distinction often collapsed in educational technology discourse.

This critique has direct implications for pronunciation learning. While students may expertly navigate social media platforms and entertainment applications, transferring these skills to identifying, evaluating, and effectively utilizing pronunciation-training applications represents a distinct cognitive and metacognitive challenge. Rosell-Aguilar’s (2017) influential taxonomy for evaluating language-learning applications identified four essential criteria: technology, pedagogy, user experience, and language-learning outcomes. Significantly, his analysis found that many popular applications “lack solid pedagogical underpinnings,” suggesting that intuitive app selection based on popularity or marketing may lead students toward suboptimal tools.

2.3 Pronunciation Applications and ASR Technology

The effectiveness of dedicated pronunciation applications has been documented across multiple empirical studies. Fouz-González (2020) demonstrated significant improvements in both perception and production of targeted segmental features among Spanish EFL learners using the *English File Pronunciation* app over just two weeks. Kholis (2021) found that ELSA Speak’s AI-powered ASR effectively improved pronunciation among Indonesian university English majors through progressive teaching cycles. Most recently, Bashori et al. (2024) compared global corrective feedback with phonetic-level feedback in a five-week experiment involving 117 Indonesian high school students, finding that detailed phonetic feedback led to greater gains in comprehensibility and word-level accuracy.

The meta-analysis by Ngo et al. (2024) synthesized these findings, reporting that ASR has a medium overall effect size ($g = 0.69$) on ESL/EFL pronunciation. Critically, moderator analysis revealed that ASR with explicit corrective feedback is considerably more effective ($g = 0.86$) than indirect feedback ($g = 0.50$), and that large effects emerge for segmental pronunciation ($g = 0.82$), whereas suprasegmental gains remain modest ($g = 0.37$). This suggests that not all pronunciation applications are equally effective—tool selection matters.

2.4 IPA Knowledge and Pronunciation Confidence

The International Phonetic Alphabet serves as the metalinguistic foundation for explicit pronunciation instruction. Trinh et al. (2022) found that explicit IPA instruction significantly

improved pronunciation among Vietnamese EFL adults, with learners developing heightened phonetic awareness and forming conceptual representations through phonetic symbols. Participants also reported increased confidence in autonomous pronunciation practice, suggesting that IPA knowledge may function as a metacognitive scaffold.

This finding aligns with broader research on phonological awareness and speech outcomes. Venkatagiri and Levis (2007) found that higher phonological awareness correlated with improved speech comprehensibility, recommending pedagogical strategies that highlight formal phonological properties. Kennedy and Trofimovich (2010) demonstrated that learners engaging in metacognitive reflection through phonetic awareness showed greater pronunciation improvement. Together, these studies suggest that theoretical phonetic knowledge may be associated with enhanced self-efficacy for pronunciation learning—a relationship the present study investigates within a MALL context. However, it is important to note that the direction of causality remains unclear: confident learners may seek phonetic knowledge, or phonetic knowledge may build confidence.

2.5 The Teacher Support Gap

Research consistently documents inadequate teacher training and insufficient classroom time for pronunciation instruction. Nguyen and Newton (2020) found that Vietnamese EFL teachers devoted limited time to pronunciation in class, with instruction typically being “unplanned and reactive.” Huensch (2019) reported that 95% of foreign language instructors believed pronunciation instruction was important, yet most lacked specific training. Uchida and Sugimoto (2020) found that many Japanese EFL teachers lacked confidence in their own pronunciation, with teacher confidence significantly correlating with instructional beliefs.

This documented gap between pronunciation’s perceived importance and the actual instructional support provided creates conditions in which students must increasingly self-direct their pronunciation learning. Vančová (2023) identified ASR-based tools as potentially “providing better pronunciation models than non-native teachers” and recommended using ASR as an “additional instrument to traditional classroom training.” The present study examines whether students experiencing inadequate teacher support represent a distinct population that might benefit from targeted AI supplementation.

3. Methodology

3.1 Participants

Participants were 79 first-year university students enrolled in an English Philology program who provided informed consent for their responses to be used in research. The sample was predominantly female, reflecting the typical gender distribution in language-focused degree programs. All participants were studying English as a foreign language (EFL) and had varying levels of English proficiency as measured by IELTS scores, ranging from no formal certification to scores of 7.0 and above. It should be noted that this sample represents a specialized population with likely above-average linguistic awareness; therefore, generalization to other student populations should be made with caution.

3.2 Instrument

A structured survey instrument was developed to assess digital readiness for AI-assisted pronunciation learning. The survey comprised 18 variables organized into four domains. As this was an exploratory study, formal reliability testing (e.g., Cronbach’s alpha) was not conducted; this represents a limitation that future research should address.

Demographics: gender, year of study, major, and IELTS score.

Self-assessment scales (1–5 Likert): pronunciation confidence, sound discrimination difficulties, IPA knowledge, and perceived adequacy of teacher pronunciation correction.

Technology use: devices used for English learning (multiple selection), previous use of pronunciation-checking applications, and specific applications used (open-ended).

Behavioral measures: practice frequency outside class.

3.3 Data Collection

Survey responses were collected between January 12 and 27, 2026. Participation was voluntary, and all respondents confirmed consent for their anonymized data to be used for research purposes. One response was excluded because of non-consent, yielding a final sample of 79 valid responses.

3.4 Analysis

Descriptive statistics (frequencies, means, medians, standard deviations) were used to characterize device-usage patterns and app-selection behaviors. Pearson correlation analysis examined the relationship between IPA knowledge and pronunciation confidence, with 95% confidence intervals calculated to provide a range of plausible population values. Cross-tabulation was used to explore the distribution of perceptions of teacher support. Open-ended responses regarding specific applications were thematically coded and quantified. Given the cross-sectional design, all correlational findings should be interpreted as associations rather than causal relationships.

4. Results

4.1 High Digital Readiness but Generalist Tool Habits

Addressing RQ1 and RQ2, the data reveal that students possess robust hardware infrastructure for mobile learning. An overwhelming 92.4% ($n = 73$) reported using smartphones for English learning, compared with 44.3% ($n = 35$) using laptops and only 11.4% ($n = 9$) using tablets. This confirms the mobile-first reality of contemporary student learning behaviors and indicates that any digital pronunciation intervention must be optimized for smartphone delivery.

Furthermore, 83.5% ($n = 66$) of students reported having used a pronunciation-checking application at some point, demonstrating substantial prior engagement with language-learning technology. However, analysis of specific application selection reveals a pattern of tool choice that may favor generalist over specialist solutions.

Table

1

Application Selection Patterns Among Students ($n = 79$)

Application	Users	Percentage	Type
Google Translate	20	25.3%	General translation
Duolingo	18	22.8%	Gamified learning
ChatGPT Voice	17	21.5%	Conversational AI
ELSA Speak	14	17.7%	Dedicated pronunciation
Cambridge Dictionary	5	6.3%	Reference tool
Other/None	5	6.3%	Various

Note. Percentages reflect the primary tool reported; students may use multiple applications.

As Table 1 illustrates, the most frequently reported application was Google Translate (25.3%), followed by Duolingo (22.8%). ELSA Speak (17.7%) and ChatGPT Voice (21.5%) represent tools specifically designed for, or capable of, providing pronunciation feedback through speech-recognition technology. It is important to note that students may use multiple tools for different purposes, and Google Translate may serve legitimate functions such as vocabulary lookup and comprehension support alongside pronunciation practice. Nevertheless, the pattern suggests that approximately one-third of students are primarily accessing applications with robust ASR-based pronunciation feedback—the type of explicit corrective feedback that meta-analytic evidence identifies as most effective ($g = 0.86$; Ngo et al., 2024).

This finding may indicate what we term a “**translation trap**”: students gravitating toward familiar, multipurpose applications rather than seeking out purpose-built pronunciation tools. However, the extent to which this represents suboptimal tool selection, as opposed to pragmatic multi-tool use, cannot be determined from the present data.

4.2 IPA Knowledge and Its Association with Confidence

Addressing RQ3, Pearson correlation analysis revealed a significant positive relationship between self-reported IPA knowledge and pronunciation confidence ($r = 0.429$, 95% CI [0.22, 0.60], $p < 0.001$). This represents a medium-to-large effect, indicating that students with stronger phonetic metalinguistic awareness report substantially higher confidence in their English pronunciation. However, the cross-sectional design precludes causal inference: this association could reflect IPA knowledge building confidence, confident students seeking phonetic knowledge, or both variables being influenced by a third factor, such as overall linguistic aptitude or motivation.

Table

2

Mean Pronunciation Confidence by IPA Knowledge Level

IPA Knowledge (1–5)	Mean Confidence	Interpretation
5 (Strong)	4.31	High confidence
4	3.80	Moderate-high confidence
3	3.56	Moderate confidence
1–2 (Weak)	3.42	Lower confidence

As Table 2 demonstrates, students with strong IPA knowledge (5/5) reported a mean confidence score of 4.31, nearly a full point higher than those with weak IPA knowledge (1–2/5), who averaged 3.42. Overall, 62% of students rated their IPA knowledge at 4 or 5 out of 5 ($M = 3.76$, $Mdn = 4.0$), suggesting that this English Philology population possesses above-average phonetic literacy. Nevertheless, the significant correlation indicates that even within this relatively knowledgeable group, IPA familiarity is meaningfully associated with self-efficacy for pronunciation.

Notably, the correlation between difficulty distinguishing similar sounds (e.g., /w/ vs /v/, /θ/ vs /s/) and IPA knowledge was weak and non-significant ($r = 0.196$, $p = 0.083$). This suggests that knowing IPA symbols does not automatically improve perceptual discrimination, which may require targeted auditory training beyond symbolic knowledge. IPA knowledge appears to be associated primarily with confidence rather than directly resolving perceptual difficulties.

4.3 The Teacher Support Gap

Analysis of perceived adequacy of teacher pronunciation correction revealed a polarized distribution rather than normal variation around the mean ($M = 4.00$, $SD = 1.38$).

Table

3

Distribution of Perceived Teacher Pronunciation Correction Adequacy

Rating	Percentage	Interpretation
5 (Strongly adequate)	57.0%	Satisfied
4	13.9%	Satisfied
3	10.1%	Neutral
2	10.1%	Dissatisfied
1 (Strongly inadequate)	8.9%	Dissatisfied

While 70.9% of students expressed satisfaction with teacher pronunciation correction (ratings of 4–5), a substantial minority of 19.0% ($n = 15$) rated teacher support as inadequate (ratings of 1–2). This polarization suggests that classroom pronunciation instruction experiences vary significantly, with nearly one in five students perceiving a meaningful deficiency.

Interestingly, perceived teacher correction time showed only a marginally significant correlation with pronunciation confidence ($r = 0.211$, 95% CI [-0.01, 0.41], $p = 0.062$). This weak relationship suggests that the mere quantity of correction may be less important than its quality, degree of individualization, or student receptivity. The finding implies that simply increasing correction time may not address the needs of dissatisfied students; rather, supplementary resources offering individualized, on-demand feedback may better serve this population.

4.4 Supplementary Finding: The Confidence-Practice Paradox

An unexpected pattern emerged in the relationship between practice frequency and

confidence. Counterintuitively, students who reported practicing “Rarely” outside class demonstrated higher mean confidence ($M = 4.12$) than those practicing “Daily” ($M = 3.92$). The correlation between practice frequency and confidence was essentially zero ($r = 0.026$, $p = 0.818$).

This finding must be interpreted with considerable caution, given the small subsample of rarely practicing students ($n = 8$). Possible interpretations include: (a) overconfidence bias among low-effort learners who lack feedback to calibrate their self-assessment; (b) highly confident students perceiving less need for additional practice; or (c) statistical noise in a small subsample. Without objective pronunciation assessments, this finding cannot distinguish among these interpretations, and we present it as an anomaly warranting future investigation rather than as a robust conclusion.

5. Discussion

5.1 The Hardware-Software Gap

The present findings suggest a potential disconnect between digital infrastructure and effective tool utilization for pronunciation learning. Students overwhelmingly possess the hardware necessary for AI-assisted pronunciation training—92.4% smartphone ownership exceeds most institutional technology requirements—yet their software selection patterns indicate that generalist tools may be chosen over specialized pronunciation applications.

The prevalence of Google Translate as the most commonly reported application (25.3%) raises questions about optimal tool selection. While Google Translate serves important functions for vocabulary and comprehension, its pronunciation feedback mechanisms are incidental rather than pedagogically designed. Meanwhile, meta-analytic evidence demonstrates that explicit corrective feedback—the hallmark of dedicated pronunciation ASR tools—produces effect sizes ($g = 0.86$) substantially exceeding those of indirect feedback approaches ($g = 0.50$; Ngo et al., 2024). However, we acknowledge that students may use multiple tools, and Google Translate use does not preclude concurrent use of dedicated pronunciation applications.

The observed pattern of tool selection aligns with Bennett et al.’s (2008) critique of digital-native assumptions: students’ technological fluency does not automatically transfer to pedagogically optimal tool selection. The convenience and familiarity of multipurpose applications may outweigh active searching for specialized solutions, even among language-focused students who might be expected to demonstrate above-average awareness of pronunciation-learning resources.

5.2 IPA Knowledge as a Metacognitive Scaffold

The significant positive correlation between IPA knowledge and pronunciation confidence ($r = 0.429$, $p < 0.001$) carries important implications for curriculum design, although the direction of this relationship remains unclear. If IPA knowledge contributes to building confidence, phonetic transcription instruction should not be viewed as abstract linguistic theory but rather as a potential pathway to enhanced learner self-efficacy. Students who understand the systematic representation of speech sounds may be better equipped to conceptualize pronunciation targets and monitor their own progress—consistent with the metacognitive benefits documented by Trinh et al. (2022) and Kennedy and Trofimovich (2010).

Alternatively, the association may reflect confident students seeking out phonetic knowledge, or both variables may stem from underlying linguistic aptitude or motivation. Longitudinal research would be necessary to establish whether teaching IPA increases confidence or whether this pattern reflects a selection effect.

The finding that IPA knowledge does not significantly correlate with sound-discrimination difficulties ($r = 0.196$, $p = 0.083$) is equally instructive. Phonetic symbol knowledge appears to be associated with confidence rather than directly enhancing perceptual discrimination. This suggests that effective pronunciation instruction should combine metalinguistic awareness (IPA) with targeted perceptual training—precisely the multimodal approach that sophisticated mobile applications can provide through visual IPA representation

alongside audio feedback.

Given that 92.4% of students access learning materials via smartphones and IPA knowledge is significantly associated with confidence, one promising educational intervention may be mobile applications that integrate IPA visualization with speech-recognition feedback. Such tools would leverage students' existing hardware infrastructure while addressing the metacognitive dimension that correlates with self-efficacy.

5.3 Targeting the Dissatisfied Minority

The 19% of students who perceive inadequate teacher pronunciation support represent a potential target population for supplementary AI tools. Rather than attempting to retrofit classroom instruction to meet all students' needs—an approach constrained by time, class size, and teacher-training limitations documented by Nguyen and Newton (2020) and Huensch (2019)—educators might strategically direct dissatisfied students toward mobile applications offering unlimited, individualized feedback.

The weak correlation between perceived teacher correction time and pronunciation confidence ($r = 0.211$, $p = 0.062$) suggests that simply increasing the quantity of correction would not necessarily improve outcomes for this group. Instead, the individualization, patience, and judgment-free practice environment that AI applications provide may address needs that classroom instruction structurally cannot meet. Vančová's (2023) recommendation to position ASR tools as “additional instruments to traditional classroom training” appears particularly well suited to this minority population.

5.4 Limitations

Several important limitations constrain the interpretation of these findings. First, the sample comprises first-year English Philology students at a single institution in Uzbekistan, a population likely possessing above-average linguistic awareness and motivation; generalization to other disciplines, educational levels, or geographic contexts should therefore be made with considerable caution. Second, all measures were self-reported, with no objective pronunciation assessments to validate confidence ratings. The confidence-practice paradox finding underscores concerns about self-report accuracy. Third, the cross-sectional design cannot establish causal direction—whether IPA knowledge increases confidence or confident students seek phonetic knowledge remains unclear. Fourth, the survey instrument was not subjected to formal reliability or validity testing. Fifth, the survey did not assess reasons for application selection, limiting our understanding of the cognitive processes underlying tool choice. Finally, small subsamples (e.g., $n = 8$ for rarely practicing students) limit the reliability of some comparisons.

6. Conclusion and Recommendations

This study documents a potential hardware-software gap in mobile-assisted pronunciation learning among first-year English Philology students. Despite near-universal smartphone ownership (92.4%) and high prior engagement with pronunciation applications (83.5%), students predominantly report using generalist tools rather than purpose-built pronunciation-training applications. Simultaneously, IPA knowledge shows a significant positive association with pronunciation confidence ($r = 0.429$, 95% CI [0.22, 0.60], $p < 0.001$), while a substantial minority (19%) perceives inadequate teacher support for pronunciation instruction.

These findings support several tentative recommendations for similar EFL contexts, although replication with more diverse samples and objective measures is warranted.

For Instructors in Similar EFL Contexts

Teachers might consider moving beyond general technology recommendations toward explicit guidance on application categories. Rather than simply suggesting that students “use an app,” instructors could specify tool types: “Consider a pronunciation-focused application with speech-recognition feedback, such as ELSA Speak, for targeted practice, while using Google Translate for vocabulary support.” This addresses the potential translation trap by directing students toward tools that offer the explicit corrective feedback associated with larger effect sizes.

Additionally, teachers might proactively identify students who perceive inadequate pronunciation support and specifically recommend mobile supplementation for this group. Positioning AI tools as individualized practice resources rather than as replacements for instruction respects classroom relationships while addressing unmet needs.

For Curriculum Designers in Similar Contexts

Given the positive association between IPA knowledge and confidence, phonetic transcription instruction might benefit from integration with practical pronunciation training rather than being treated as abstract theory confined to linguistics courses. Mobile tools that visualize phonetic symbols alongside audio and visual feedback could serve this integrative function. The 92.4% smartphone-usage rate suggests that any digital intervention should be mobile-optimized; computer-laboratory assumptions no longer reflect student reality in this context.

For Future Research

Several avenues warrant further investigation. First, qualitative research should explore why students gravitate toward generalist applications despite the availability of specialized alternatives; understanding this decision-making process is essential for effective intervention design. Second, longitudinal studies should examine whether the IPA-confidence relationship reflects causation: does teaching IPA increase confidence, or do confident students simply pursue phonetic knowledge? Third, the confidence-practice paradox merits exploration through objective pronunciation assessment to determine whether it reflects genuine ability differences or calibration failure. Fourth, replication with larger, more diverse samples across different educational contexts would strengthen generalizability. Finally, intervention studies should assess whether explicit guidance toward specialized pronunciation applications improves both tool-selection patterns and actual pronunciation outcomes.

In conclusion, the promise of mobile-assisted pronunciation learning cannot be realized through hardware access alone. Bridging the gap between smartphone readiness and pronunciation proficiency may require strategic attention to tool-selection guidance, phonetic literacy development, and targeted support for students experiencing instructional deficits. The infrastructure is in place; the pedagogical direction it requires remains the critical challenge for educators and curriculum designers in EFL contexts.

REFERENCES

1. Bashori M., van Hout R., Strik H., Cucchiarini C. I can speak: improving English pronunciation through automatic speech recognition-based language learning systems // *Innovation in Language Learning and Teaching*. — 2024. — Vol. 18, № 5. — P. 443–461. — DOI: 10.1080/17501229.2024.2315101
2. Bennett S., Maton K. Beyond the ‘digital natives’ debate: towards a more nuanced understanding of students’ technology experiences // *Journal of Computer Assisted Learning*. — 2010. — Vol. 26, № 5. — P. 321–331. — DOI: 10.1111/j.1365-2729.2010.00360.x
3. Bennett S., Maton K., Kervin L. The ‘digital natives’ debate: a critical review of the evidence // *British Journal of Educational Technology*. — 2008. — Vol. 39, № 5. — P. 775–786. — DOI: 10.1111/j.1467-8535.2007.00793.x
4. Chen Z., Chen W., Jia J., An H. The effects of using mobile devices on language learning: a meta-analysis // *Educational Technology Research and Development*. — 2020. — Vol. 68, № 4. — P. 1769–1789. — DOI: 10.1007/s11423-020-09801-5
5. Fouz-González J. Using apps for pronunciation training: an empirical evaluation of the English File Pronunciation app // *Language Learning & Technology*. — 2020. — Vol. 24, № 1. — P. 62–85. — DOI: 10.64152/10125/44709
6. Huensch A. Pronunciation in foreign language classrooms: instructors’ training, classroom practices, and beliefs // *Language Teaching Research*. — 2019. — Vol. 23, № 6. — P. 745–764. — DOI: 10.1177/1362168818767182
7. Karakaya K., Bozkurt A. Mobile-assisted language learning (MALL) research trends and

- patterns through bibliometric analysis // *System*. — 2022. — Vol. 109. — Article 102876. — DOI: 10.1016/j.system.2022.102876
8. Kennedy S., Trofimovich P. Language awareness and second language pronunciation: a classroom study // *Language Awareness*. — 2010. — Vol. 19, № 3. — P. 171–185. — DOI: 10.1080/09658416.2010.486439
9. Kholis A. ELSA Speak app: automatic speech recognition (ASR) for supplementing English pronunciation skills // *Pedagogy: Journal of English Language Teaching*. — 2021. — Vol. 9, № 1. — P. 1–14. — DOI: 10.32332/joelt.v9i1.2723
10. Kukulska-Hulme A., Shield L. An overview of mobile assisted language learning: from content delivery to supported collaboration and interaction // *ReCALL*. — 2008. — Vol. 20, № 3. — P. 271–289. — DOI: 10.1017/S0958344008000335
11. Mihaylova M., Gorin S., Reber T. P., Rothen N. A meta-analysis on mobile-assisted language learning applications: benefits and risks // *Psychologica Belgica*. — 2022. — Vol. 62, № 1. — P. 252–271. — DOI: 10.5334/pb.1146
12. Ng W. Can we teach digital natives digital literacy? // *Computers & Education*. — 2012. — Vol. 59, № 3. — P. 1065–1078. — DOI: 10.1016/j.compedu.2012.04.016
13. Ngo T. T.-N., Chen H. H.-J., Lai K. K.-W. The effectiveness of automatic speech recognition in ESL/EFL pronunciation: a meta-analysis // *ReCALL*. — 2024. — Vol. 36, № 1. — P. 4–21. — DOI: 10.1017/S0958344023000113
14. Nguyen L. T., Newton J. Pronunciation teaching in tertiary EFL classes: Vietnamese teachers' beliefs and practices // *TESL-EJ*. — 2020. — Vol. 24, № 1.
15. Rosell-Aguilar F. State of the app: a taxonomy and framework for evaluating language learning mobile applications // *CALICO Journal*. — 2017. — Vol. 34, № 2. — P. 243–258. — DOI: 10.1558/cj.27623
16. Saito K. Examining the role of explicit phonetic instruction in native-like and comprehensible pronunciation development // *Language Awareness*. — 2011. — Vol. 20, № 1. — P. 45–59. — DOI: 10.1080/09658416.2010.540326
17. Stockwell G. Using mobile phones for vocabulary activities: examining the effect of the platform // *Language Learning & Technology*. — 2010. — Vol. 14, № 2. — P. 95–110.
18. Stockwell G. *Mobile assisted language learning: concepts, contexts and challenges*. — Cambridge: Cambridge University Press, 2022.
19. Trinh Q. L., Nguyen T. D. L., Le T. T. Using explicit instruction of the International Phonetic Alphabet system in English as a foreign language adult classes // *European Journal of Educational Research*. — 2022. — Vol. 11, № 2. — P. 749–761. — DOI: 10.12973/eu-er.11.2.749
20. Uchida Y., Sugimoto J. Non-native English teachers' confidence in their own pronunciation and attitudes towards teaching: a questionnaire survey in Japan // *International Journal of Applied Linguistics*. — 2020. — Vol. 30, № 1. — P. 19–34. — DOI: 10.1111/ijal.12253
21. Vančová H. AI and AI-powered tools for pronunciation training // *Journal of Language and Cultural Education*. — 2023. — Vol. 11, № 3. — P. 1–15. — DOI: 10.2478/jolace-2023-0020
22. Venkatagiri H. S., Levis J. M. Phonological awareness and speech comprehensibility: an exploratory study // *Language Awareness*. — 2007. — Vol. 16, № 4. — P. 263–277. — DOI: 10.2167/la417.0