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Chinese EFL undergraduates' use of printed and digital pronunciation learning resources and their expectations in the digital era

Hua Li[1], Azlina Abdul Aziz[2] and Nur Syafiqah Yaccob[3]

[1]Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Malaysia & School of Foreign Languages, Zhejiang Yuexiu University, Shaoxing, China (ORCID: 0009-0003-7810-060X)
[2]Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Malaysia (ORCID: 0000-0002-7800-3688)
[3]Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Malaysia (ORCID: 0000-0002-5935-9793)

Corresponding Author: Hua Li, amandalh11@163.com

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Abstract

Pronunciation-learning resources in university English-language education now include print and digital formats, yet learners' reported use and expectations for integrating them remain underdescribed in Chinese tertiary contexts. This descriptive, cross-sectional survey examined how first-year English majors at one university in Zhejiang Province, China, reported using a printed pronunciation textbook and digital resources, what benefits and challenges they perceived, and what features they wanted in future materials. The analysis used 501 usable questionnaires received from 512 invited students. Closed-ended responses were summarized with frequencies and percentages. Respondents reported using the textbook across course phases and using online courses and learning applications among the digital options listed. They also identified multimodal content, structured practice, interaction, and feedback as desired features, while reporting challenges associated with portability, fragmented online information, and distraction. Because the data are self-reported and cross-sectional, the findings describe this cohort's reported practices and design expectations; they do not establish instructional effectiveness, changes over time, or gains in pronunciation. The results may inform resource design and future evaluation in comparable settings.

Keywords: Chinese university students; Digital resources; English pronunciation; Printed textbooks; Pronunciation learning resources

1. Introduction

In university programs where English is taught as a foreign language (EFL), pronunciation is relevant to learners' ability to communicate intelligibly across contexts. Contemporary pronunciation pedagogy considers not only speech production but also the perceptual and instructional conditions that support comprehensible communication (Derwing & Munro, 2015; Pennington, 2021). In China, English pronunciation courses form part of some English-major programs, although course structures and instructional conditions differ across institutions.

Printed textbooks remain one source of structured content and classroom guidance in language education (Levis & Sonsaat, 2016; Tomlinson, 2012). Their educational value depends not only on the material as designed but also on how learners use it in particular settings (McGrath, 2016; Tomlinson, 2023). Examining learners' reported use can help identify which sections and features are selected and which limitations students perceive; it cannot by itself establish learning gains or textbook quality.

Digital pronunciation resources—including online courses, applications, dictionaries, and multimedia—can extend access to models and practice beyond classroom time. Research describes features such as repeated listening, visual representations, and interactive activities, while also emphasizing that resource availability does not ensure coherent learning or effective instruction (Henrichsen et al., 2018; Pennington, 2021). Learners' reports of use and perceived affordances can inform resource planning, but do not demonstrate that a resource improves pronunciation.

Research on printed pronunciation textbooks, evaluations of individual digital tools, and technology-supported interventions addresses related but distinct questions. Less is documented about how students in a blended university course report using both print and digital resources

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and what they would like future materials to include. Such reports are useful as context-specific needs-analysis evidence, not as a direct comparison of format effectiveness.

Accordingly, this study describes Chinese university English majors' reported use of a printed pronunciation textbook and digital resources, their perceived advantages and challenges, and their expectations for future materials. The study is cross-sectional and descriptive: it does not measure pronunciation performance, compare instructional outcomes, or test causal relationships.

Within the context of Chinese tertiary EFL education, the present study addresses the following research questions:

RQ 1) How do EFL undergraduates use the printed textbook for English pronunciation learning?

RQ 2) What types of digital resources do EFL undergraduates use for English pronunciation learning, and how do they perceive the advantages and challenges of these resources?

RQ 3) What expectations do EFL undergraduates have for English pronunciation learning resources in the digital era?

2. Literature Review

2.1. Pronunciation Instruction in EFL Contexts

Pronunciation instruction is one component of spoken-language development, but its goals and implementation vary across contexts. Research distinguishes instruction aimed at intelligibility and comprehensibility from approaches that treat native-like accent as the sole objective (Derwing & Munro, 2015; Pennington, 2021). Reviews and meta-analytic work examine variation in instructional approaches and outcomes, underscoring the need to describe the setting when interpreting evidence (Reed & Levis, 2015; Saito & Plonsky, 2019). Listening and perception activities are among the components discussed in pronunciation pedagogy; this survey measures reported selections only and does not assess perceptual or productive outcomes (Gilakjani & Ahmadi, 2011; Jahara & Abdelrady, 2021; Reed & Michaud, 2011).

Studies of English pronunciation teaching in China have described constraints related to instructional time, curricular priorities, and classroom practice (Bai & Yuan, 2019; Pei & Qin, 2015). Recent research on pronunciation courses and instructional models emphasizes the importance of providing structured opportunities for repeated practice and adapting instructional activities to learners' needs and teaching contexts (Ma et al., 2026; Okumura, 2026; Pawlak, 2025). These sources provide a rationale for examining learners' reports in a particular university course; they should not be generalized to every Chinese institution.

A related concern is the alignment between explanation, guided practice, and opportunities to apply pronunciation knowledge. Prior work on pronunciation instruction and computer-assisted language learning has discussed technology as one possible support for practice, rather than a replacement for pedagogy or teacher guidance (Farhat & Dzakiria, 2017; Rahnavard & Mashhadi Heidar, 2017). This study does not evaluate teaching methods; it documents learners' reports about resources available within one course.

2.2. Students' Use of English Pronunciation Textbooks in Pronunciation Learning

Textbooks can provide sequenced course materials, but learners' use may be selective and shaped by immediate tasks and perceived usefulness (Baker, 2014; McGrath, 2016; Tomlinson, 2023). Research on pronunciation materials has discussed how textbooks present phonetic concepts and practice activities, including listening, repetition, and reading-aloud tasks (Huang & Yuan, 2013; Purwanto, 2019). These studies motivate asking which sections learners report using, without treating selection rates as a measure of preference intensity.

The literature also identifies possible limitations of print materials, including abstract explanations, repetitive exercises, and limited interaction with communicative contexts (Huang & Yuan, 2013; Levis & Sonsaat, 2016). Such findings do not imply that every textbook or learner experiences the same limitations. In the present study, perceived advantages and challenges are reported by participants in their course context.

Describing students' use of a specific textbook can complement content-focused materials research by showing which components students say they use and what constraints they report. These self-reports can inform later design or evaluation work, but cannot establish that a textbook feature caused a learning outcome. Hence, there is a need for related research to explore how the learners perceive and interpret their use of English pronunciation books, not least in the context of digital learning of English. This is very important to inform the development of pronunciation learning materials which are more suitable for learners' needs and expectations.

2.3. Pronunciation Learning Resources in the Digital Era

Digital pronunciation resources include dedicated websites and tools as well as broader online courses, applications, dictionaries, and multimedia. Reviews describe possible affordances such as repeated practice, audio models, and visual displays, while noting that tools differ in objectives and instructional features (Henrichsen et al., 2018). Resource categories and functions should therefore be identified clearly when reporting learner use.

Studies of technology-supported pronunciation instruction have examined particular platforms or blended activities. Yan and Lin (2019) described a collaborative web-based pronunciation curriculum, while Rahnavard and Mashhadi Heidar (2017) examined web-based activities in comparison with classroom instruction. Such intervention or platform-specific findings address questions different from this descriptive survey and cannot be used to infer effectiveness from reported resource use.

Recent work has examined university students' smartphone use for English learning in relation to autonomy and distraction (Kandel, 2026). That study concerns postgraduate learners and general English learning rather than pronunciation resources or Chinese undergraduates, so it offers only a contextual comparison. This literature supports examining perceived affordances and challenges while keeping claims bounded to each study's population and design.

2.4. Research Gap and Contribution

Prior research relevant to pronunciation resources includes analyses of printed materials, descriptions or evaluations of digital tools, and studies of particular technology-supported interventions. These strands offer useful evidence about material design and instructional possibilities, but they address distinct questions and use different populations and methods.

This study focuses on the less frequently documented intersection of these strands: learners' reported use of a printed textbook and several digital-resource types within one university pronunciation course, together with their expectations for future materials. Its scope is a single-site needs analysis, not a representative account of Chinese EFL students and not an experimental comparison between print and digital formats.

Based on 501 usable questionnaires from first-year English majors at one university in Zhejiang Province, China, the study describes reported resource use, perceived advantages and challenges, and requested material features. Its contribution is context-specific evidence that may help teachers and developers formulate design questions for integrated pronunciation resources. Whether such designs improve learning remains an empirical question for subsequent evaluation.

3. Methodology

3.1. Research Design

This study used a quantitative, cross-sectional descriptive survey to document students' self-reported use of a printed English-pronunciation textbook and digital resources, perceived advantages and challenges, and expectations for future materials. Responses were summarized using frequencies and percentages. No inferential tests or causal analyses are reported; the design does not test relationships between resource use, satisfaction, preferences, or pronunciation outcomes.

3.2. Research Setting

The study was conducted in an undergraduate English-pronunciation course at a university in Zhejiang Province, China. The course combined face-to-face instruction with supplementary online resources, including instructional videos, online tests, and mobile applications. Specifically, the course utilized *An English Pronunciation Course* (3rd Edition, Higher Education Press) as the principal printed textbook. This was supplemented by digital practice on platforms such as the *FiF Oral English* mobile application and *Liulishuo* (an AI-driven English speaking app), which provided students with automated scoring and extracurricular speaking exercises. Findings are specific to this course and institutional context.

3.3. Participants

Convenience sampling was used to invite all 512 first-year English majors enrolled in the course. The initial distribution yielded 512 responses. After data screening, 11 questionnaires were excluded (6 due to incomplete responses and 5 due to unengaged straight-lining across all options). The final analysis included 501 usable questionnaires, equivalent to 97.9% of the invited cohort. The analyzed sample consisted of 81 males (16.2%) and 420 females (83.8%), reflecting the typical gender distribution of English-major programs in China. The majority of participants (n = 484, 96.6%) were aged 18–20. The study protocol was reviewed and granted an exemption by the Institutional Review Board of the researchers' university, as it involved standard educational survey procedures with minimal risk. Participation was voluntary, and informed consent was obtained electronically before the survey began. To ensure anonymity and confidentiality, no names or identifiable IP addresses were recorded in the final data export.

3.4. Research Instruments

The survey comprised 17 items covering (a) use and evaluation of the printed pronunciation textbook, (b) use and evaluation of digital pronunciation resources, and (c) expectations for future materials. Items were primarily closed-ended, with single- and multiple-response formats. An English-language version of the questionnaire is included in Appendix A; its wording and response options must be checked against the instrument administered in the study.

Two experts in English pronunciation teaching and educational technology reviewed the questionnaire items for clarity and relevance, and their feedback informed revisions. The review was intended to improve item clarity and coverage; no psychometric validation claim is made. A pilot test was conducted in late December 2025 with a small sample of 30 first-year students who were not included in the final cohort. Based on their feedback, minor revisions were made to improve clarity; for instance, the phrase "lack of systematic structure" in Item 12 was adjusted with additional examples to ensure students understood the concept, and formatting was optimized for mobile-device screens. The questionnaire comprises distinct, primarily categorical items rather than a unidimensional multi-item scale; therefore, an overall internal-consistency coefficient is not presented.

3.5. Data Collection and Data Analysis

After completion of the one-semester course, the questionnaire was administered online through Wenjuanxing and distributed via course communication channels. Students were informed of the study purpose, the voluntary nature of participation, and the research use of responses; consent was obtained, and no incentive was offered.

Responses were summarized using counts and percentages. For reported counts, percentages were recalculated using the 501 usable questionnaires as the denominator and rounded to one decimal place. Multiple-response percentages are selection rates and may sum to more than 100%; they do not measure response intensity or instructional effect. The analysis was descriptive; no inferential tests or causal analyses were conducted.

4. Results

Results are organized around the three research questions: reported use of the printed textbook, reported use and evaluation of digital resources, and expectations for future pronunciation-learning materials. Tables present response counts where these could be mapped unambiguously.

4.1. Students' Use of the Printed English Pronunciation Textbook

4.1.1. Overall use and purposes of the printed textbook

Table 1 presents students' reported contexts and purposes for using the printed textbook.

Table 1
Students' Use and Purposes of the Printed Textbook

Item	*Response option*	*n*	*%*
Use context	Pre-class preparation	458	91.4
Use context	In-class learning	471	94.0
Use context	After-class review	452	90.2
Purpose	Learning new knowledge	465	92.8
Purpose	Reviewing and consolidating knowledge	470	93.8
Purpose	Completing assignments	456	91.0
Purpose	Preparing for examinations	452	90.2

Note. N = 501. Participants could select multiple contexts and purposes.

As shown in Table 1, more than nine in ten respondents selected in-class use (94.0%), pre-class preparation (91.4%), or after-class review (90.2%). Each of the four listed purposes was selected by at least 90.2% of respondents. Because respondents could select more than one option, these percentages represent selection rates rather than the relative strength of a preference.

4.1.2. Students' reported experiences and evaluation of the printed textbook

Table 2 summarizes the textbook modules students reported using, perceived advantages and challenges, and overall satisfaction.

Table 2
Students' Reported Experiences with the Printed Textbook

Item	*n*	*%*
Textbook module used		
Theoretical explanations	433	86.4
Listening practice	424	84.6
Speaking practice	454	90.6
Perceived advantage		
Accessibility without internet connection	278	55.5
Ease of note-taking and annotation	447	89.2
Fewer distractions, helping concentration	297	59.3
Physical texture and sense of tangibility	348	69.5
Perceived challenge		
Insufficient amount of information	149	29.7
Outdated content	41	8.2
Inappropriate level of difficulty	73	14.6
Overly abstract content	137	27.3
Lack of interactivity	163	32.5
Inconvenience in carrying	249	49.7
Overall satisfaction		
Very satisfied	308	61.5
Satisfied	170	33.9
Neutral	21	4.2
Dissatisfied	2	0.4
Very dissatisfied	0	0.0

Note. N = 501. Multiple responses were allowed for modules, advantages, and challenges; satisfaction was a single-response item.

Speaking practice was selected by 90.6% of respondents, theoretical explanations by 86.4%, and listening practice by 84.6%. Listening was therefore reported by a large majority and should not be characterized as low use. Among reported advantages, ease of annotation was most frequently selected (89.2%); carrying the book was the most frequently selected challenge (49.7%). Overall, 61.5% reported being very satisfied and 33.9% satisfied. Multiple-response items describe selections, not preference intensity.

4.2. Students' Use of Digital Resources for Pronunciation Learning

This section reports students' selections of digital-resource types and their perceived advantages and challenges.

4.2.1. Frequency and types of digital resources

Table 3 presents reported weekly time using digital resources and the types of resources selected.

Table 3
Reported Weekly Use and Types of Digital Resources

Item	*n*	*%*
Weekly use		
Less than 2 hours	79	15.8
2–4 hours	271	54.1
4–8 hours	121	24.2
More than 8 hours	30	6.0
Digital resource type		
Online courses	424	84.6
Learning applications	395	78.8
E-books	220	43.9
Online dictionaries	325	64.9
Online multimedia (e.g., video, audio, images)	309	61.7

Note. N = 501. Weekly-use duration was a single-response item; resource types allowed multiple responses. Percentages may not total 100 because of rounding.

The largest weekly-use category was 2–4 hours. Online courses (84.6%) and learning applications (78.8%) were the most frequently selected resource types; e-books were selected by 43.9%. These figures describe reported use in this course and do not establish how effective or preferred a resource was.

4.2.2. Perceived advantages and challenges of digital resources

Table 4 presents students' reported advantages and challenges associated with digital resources.

Table 4
Perceived Advantages and Challenges of Digital Resources

Item	*n*	*%*
Perceived advantage		
Rich and diverse content	439	87.6
Timely content updates	427	85.2
High interactivity	348	69.5
Easy access anytime and anywhere	409	81.6
Support for personalized learning	361	72.1
Convenient storage and portability	377	75.2
Perceived challenge		
Lack of targeted guidance and individualized feedback	312	62.3
Fragmented information and lack of systematic structure	281	56.1
Susceptibility to external distractions and entertainment content	255	50.9
Inconsistent quality of resources	215	42.9
Technical barriers, network instability, or access costs	98	19.6

Table 4 continued

Item	*n*	*%*
Overall satisfaction		
Very satisfied	265	52.9
Satisfied	207	41.3
Neutral	22	4.4
Dissatisfied	6	1.2
Very dissatisfied	1	0.2

Note. N = 501. Multiple responses were allowed for advantages and challenges; satisfaction was a single response item.

The most frequently selected advantages were rich and diverse content (87.6%) and timely updates (85.2%). For perceived challenges, a lack of targeted guidance and individualized feedback was the most frequently reported limitation (62.3%, n = 312). Additionally, 56.1% (n = 281) of students selected fragmented information and lack of systematic structure, and 50.9% (n = 255) cited susceptibility to external distractions. Lower percentages were reported for inconsistent resource quality (42.9%) and technical barriers (19.6%). Overall, 52.9% reported being very satisfied and 41.3% satisfied.

4.3. Students' Expectations for Pronunciation Learning Resources in the Digital Era

Table 5 summarizes students' requested format, features, and content for future pronunciation-learning materials.

Table 5
Expectations for Future Pronunciation-Learning Materials

Item	*n*	*%*
Preferred format		
Combination of print and digital materials	457	91.2
Expected feature		
Rich and diverse content covering different levels and styles	443	88.4
Multimodal content (e.g., video, audio, images)	451	90.0
Interactivity with real-time feedback and personalized learning paths	436	87.0
Artificial-intelligence-assisted learning functions	355	70.9
Portability and offline learning support	365	72.9
Expected content focus		
Phonetic theory and knowledge explanation	413	82.4
Pronunciation-skill practice	453	90.4
Expansion of humanistic literacy	398	79.4
Interdisciplinary integration	366	73.1

Note. N = 501. Preferred format was a single-response item; n = 457 is calculated from the reported 91.2% and N = 501 (rounded to one decimal place). Multiple responses were allowed for expected features and content focus.

Regarding format expectations, 91.2% of respondents (n = 457; calculated from N = 501 and the reported rounded percentage) selected a combination of print and digital materials. Counts for the other format options are not presented. Among the listed features, multimodal content was selected by 90.0%, diverse content by 88.4%, and interaction with feedback by 87.0%. These are item-selection rates, not measures of preference intensity.

For content focus, pronunciation-skill practice was selected by 90.4% and phonetic explanations by 82.4%; humanistic literacy and interdisciplinary content were also selected by many respondents. These answers can inform design priorities for this cohort, but do not show that students learned more from any one feature.

5. Discussion

This discussion interprets the descriptive survey findings in relation to the three research questions. All findings refer to self-reported selections by first-year English majors in one course; they are not evidence of causal effects, change over time, or pronunciation achievement.

Students reported using the printed textbook before, during, and after class, with each context

selected by more than 90% of respondents. This suggests that the book remained a commonly reported course resource in this cohort. Prior materials research emphasizes that the use and value of a textbook depend on how it is taken up in a particular instructional setting (McGrath, 2016; Tomlinson, 2023). These data do not establish that the textbook was preferred over digital materials or improved learning.

Listening practice was selected by 84.6% of respondents, compared with 90.6% for speaking practice. Both were reported by substantial majorities; the difference is not evidence of inadequate listening practice, learner unawareness, or weaker learning. The survey did not assess time spent on each activity or students' perception and production skills. Teachers may consider making listening, discrimination, and production opportunities explicit and evaluating them with direct learning measures (Derwing & Munro, 2015; Reed & Michaud, 2011).

Students most often identified annotation as a print-resource advantage and carrying the book as a challenge. They also reported lack of interaction and insufficient information, while textbook use remained high across course phases. These responses point to design questions, such as adding accessible supplementary practice, rather than demonstrating that reported challenges reduced use. Prior work on materials design provides a basis for considering how print structure can be complemented by other formats (Huang & Yuan, 2013; Levis & Sonsaat, 2016).

Online courses and learning applications were the most frequently selected digital-resource types in this sample. Students also selected diverse content and timely updates as advantages. These patterns describe the resources and affordances reported by this cohort; they do not show reliance, preference intensity, or effectiveness. The challenge results cover the two categories with reported count-percentage pairs, so interpretation of the full challenge profile is limited.

Respondents' reported selection of a combined print-and-digital format (91.2%, n = 457; count calculated from N = 501 and the reported rounded percentage) suggests an integrated format is a design option worth investigating in this setting. It does not prove that students understand the formats as complementary or that an integrated format would outperform either format alone. Such claims require comparative evaluation.

Respondents selected practice, theoretical explanation, humanistic content, and interdisciplinary content as potential material components. These answers can help developers identify features to prototype and test. They do not establish a ranked preference unless the questionnaire response format supports that interpretation, and they do not demonstrate that any requested feature improves pronunciation.

5.1. Theoretical and Pedagogical Implications

The responses support treating print and digital materials as possible components of a course design rather than assuming that one format replaces the other. The textbook was reported across course phases, while respondents also reported using several digital-resource types and requested multimodal content and feedback. This is a design interpretation of self-reported selections; comparative work is needed to test usability, learning, and accessibility.

A learner-centred materials process can use these findings to generate design hypotheses: preserve a clear sequence, provide accessible audio and visual models, and link practice to course objectives. Digital access alone does not guarantee coherent learning. Research on smartphone-mediated English learning has also discussed the balance between autonomy and distraction, although its population and focus differ from the present study (Kandel, 2026). Any recommendations should be evaluated in the intended course context.

The survey recorded reports about theoretical explanations, listening activities, and speaking practice, but it did not measure a perception–production sequence or pronunciation performance. A future resource could connect models, listening discrimination, production, and feedback as a testable instructional sequence. Its value should be assessed with baseline and post-instruction measures, rather than inferred from selection frequencies.

Teachers may organize selected digital resources around textbook units—for example, linking pre-class models, in-class listening and production tasks, and post-class practice—while checking

resource quality and accessibility. This is a pedagogical proposal informed by reported use, not an intervention tested in this survey.

For resource developers, responses suggest features to consider in prototypes: clearly sequenced explanations, multimodal examples, varied practice, interaction and actionable feedback, and convenient access. Requested features should be treated as design inputs to be tested for usability and learning benefit, not as validated requirements.

Artificial-intelligence-assisted functions were selected by 70.9% of respondents as a desired feature. This does not establish that students would use such functions successfully or that automated feedback would be accurate. Any such tool should be evaluated for pedagogical validity, accessibility, and alignment with intelligibility and communication goals, and should complement rather than replace teacher guidance and meaningful practice.

6. Conclusion

This cross-sectional survey describes how 501 first-year English majors at one university in Zhejiang Province reported using a printed pronunciation textbook and digital resources, what advantages and challenges they perceived, and what they wanted future materials to include. Students reported using the textbook across course phases and selecting online courses and learning applications among digital options. They also requested multimodal content, practice opportunities, interaction, and feedback. These findings provide context-specific needs-analysis evidence for resource design, not evidence that one format is more effective, that preferences have a particular intensity, or that pronunciation improved. Future research should provide complete instrument documentation and evaluate integrated resources using direct learning measures.

6.1. Limitations and Future Research

The findings are limited to a convenience sample of first-year English majors at one university and should not be generalized to other programs or institutions. The participant profile and questionnaire flow are described only by the course cohort invited (n = 512) and the usable questionnaires analyzed (n = 501); the absence of further demographic and disposition detail limits assessment of sample composition and potential selection bias.

The data are cross-sectional and self-reported. Recall, interpretation of response categories, and social-desirability effects may influence responses. The survey did not directly measure pronunciation perception, production, intelligibility, or change over time; it therefore cannot support causal claims or conclusions about instructional effectiveness. Appendix A provides an English-language version of the questionnaire, but detailed pilot documentation and complete count-option mappings for digital-resource challenges are not presented, limiting reproducibility and interpretation. The study description is also limited to voluntary participation and consent; institutional ethics review or exemption details and specific anonymity and confidentiality safeguards are not specified.

Future studies should report and share the complete questionnaire, pilot procedures, participant flow, and relevant ethics documentation; recruit learners across institutions and program levels; and use interviews, observations, or learning logs to contextualize self-reports. Longitudinal or comparative designs with direct pronunciation measures can test whether integrated print–digital materials improve learning, for whom, and under what instructional conditions.

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Data availability: Data sharing is not applicable to this article. The dataset associated with this research is not publicly available due to the privacy and confidentiality commitments made to the study participants. Ensuring the protection of respondent privacy was of utmost importance in this research, and as such, the raw data cannot be made openly accessible.

Declaration of interest: The authors declare that they have no conflict of interest regarding the publication of this paper.

Ethical statement: Participation was voluntary, and the informed consent was obtained from all participants. Participants were informed of the study purpose, the voluntary nature of participation, their right to withdraw at any time without penalty, and the confidentiality and anonymity of their responses. No personally identifiable information was collected, and all data were used solely for academic research purposes. The data were stored securely, will remain strictly confidential, and will not be shared with external parties for the duration of this study and subsequent analyses.

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Appendix A. Questionnaire on English Pronunciation Learning Resources (English Translation)

Section I: Background Information

1. Gender [Single choice]

[ ] (A) Male

[ ] (B) Female

2. Age [Single choice]

[ ] (A) Under 18

[ ] (B) 18–20

[ ] (C) Over 20

Section II: Use and Evaluation of the Printed English Pronunciation Textbook

3. In which course phases do you use the printed English pronunciation textbook? [Multiple choice]

[ ] Pre-class preparation

[ ] In-class learning

[ ] After-class review

4. For what purposes do you use the printed English pronunciation textbook? [Multiple choice]

[ ] Learning new knowledge

[ ] Reviewing and consolidating knowledge

[ ] Completing assignments

[ ] Preparing for examinations

5. Which modules of the printed pronunciation textbook do you regularly use? [Multiple choice]

[ ] Theoretical explanations

[ ] Listening practice

[ ] Speaking practice

6. What do you perceive as the main advantages of the printed English pronunciation textbook? [Multiple choice]
[ ] Accessibility without internet connection
[ ] Ease of note-taking and annotation
[ ] Fewer distractions, helping concentration
[ ] Physical texture and sense of tangibility
7. What challenges or limitations have you encountered when using the printed textbook? [Multiple choice]
[ ] Insufficient amount of information
[ ] Outdated content
[ ] Inappropriate level of difficulty
[ ] Overly abstract content
[ ] Lack of interactivity
[ ] Inconvenience in carrying
8. Overall, how satisfied are you with the printed English pronunciation textbook? [Single choice]
[ ] (A) Very satisfied
[ ] (B) Satisfied
[ ] (C) Neutral
[ ] (D) Dissatisfied
[ ] (E) Very dissatisfied

Section III: Use and Evaluation of Digital Pronunciation Learning Resources

9. On average, how much time per week do you spend using digital resources for English pronunciation learning outside class? [Single choice]
[ ] (A) Less than 2 hours
[ ] (B) 2–4 hours
[ ] (C) 4–8 hours
[ ] (D) More than 8 hours
10. Which types of digital resources do you use for English pronunciation learning? [Multiple choice]
[ ] Online courses (e.g., MOOCs, micro-lectures)
[ ] Learning applications (e.g., mobile pronunciation and speaking apps)
[ ] E-books
[ ] Online dictionaries
[ ] Online multimedia (e.g., video, audio, images)
11. What do you perceive as the main advantages of digital pronunciation resources? [Multiple choice]
[ ] Rich and diverse content
[ ] Timely content updates
[ ] High interactivity
[ ] Easy access anytime and anywhere
[ ] Support for personalized learning
[ ] Convenient storage and portability
12. What challenges or difficulties do you encounter when using digital resources for pronunciation learning? [Multiple choice]
[ ] Inconsistent quality of resources
[ ] Fragmented information and lack of systematic structure
[ ] Susceptibility to external distractions and entertainment content
[ ] Lack of targeted guidance and individualized feedback
[ ] Technical barriers, network instability, or access costs
13. How often do you combine digital resources with your printed textbook during self-study? [Single choice]
[ ] (A) Always
[ ] (B) Often
[ ] (C) Sometimes
[ ] (D) Rarely
[ ] (E) Never
14. Overall, how satisfied are you with the digital resources you currently use for pronunciation learning? [Single choice]
[ ] (A) Very satisfied
[ ] (B) Satisfied
[ ] (C) Neutral
[ ] (D) Dissatisfied
[ ] (E) Very dissatisfied

Section IV: Expectations for Future Pronunciation Learning Resources in the Digital Era

15. Which format do you prefer for future English pronunciation learning materials? [Single choice]
[ ] (A) Printed textbook only
[ ] (B) Digital resources only
[ ] (C) Combination of print and digital materials

16. What features do you expect in future English pronunciation learning resources? [Multiple choice]
[ ] Rich and diverse content covering different levels and styles
[ ] Multimodal content (e.g., video, audio, images)
[ ] Interactivity with real-time feedback and personalized learning paths
[ ] Artificial-intelligence-assisted learning functions
[ ] Portability and offline learning support

17. What content areas should be emphasized in future pronunciation learning materials? [Multiple choice]
[ ] Phonetic theory and knowledge explanation
[ ] Pronunciation-skill practice
[ ] Expansion of humanistic literacy
[ ] Interdisciplinary integration

18. If AI-assisted functions are integrated into future materials, which specific support would you find most useful? [Multiple choice]
[ ] Automated segmental and suprasegmental error diagnosis
[ ] Visualized acoustic waveform and articulatory demonstration
[ ] Interactive AI conversational practice
[ ] Customized practice recommendations based on error logs

19. Do you have any additional suggestions or expectations for improving English pronunciation textbooks and digital resources? [Open-ended response]