

Intonation Patterns in Pakistani English: A Comparative Study in Lahore, Pakistan and Nanjing, China

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Abstract

This qualitative comparative case study examines intonation patterns of Pakistani English based on a systematic study of teachers and students in Grade 9-10 in (Lahore, Pakistan) and (Nanjing, China). By analyzing the influence of educational setting, cultural setting and pedagogical practice develop suprasegmental characteristics of two different environments, the study fills the essential vacuum in comparative studies of prosody. Applying the methodology of the case study research with the use of the survey type, the data were gathered among 100 individuals (20 teachers, 80 students) with the help of the interview procedure, observation, reflective journal and the survey-based questionnaires. Thematic analysis depicts notable cross context differences: Lahore participants exhibit higher Urdu/Punjabi L1 transfer with small difference in pitch (mean agreement = 4.1/5), whereas Nanjing based Pakistani students portray moderate expansion of prosodic expression across multilingual exposure (mean score = 3.7/5). In both the contexts there has been no explicit intonation teaching although all the participants are well conscious of the importance of intonation (Lahore 89%, Nanjing 82%). The comparative analysis has determined five divergent patterns, with environmental influence on prosodic awareness, disparate access to native-speaker models, disparities of technology integration, impacts of assessment systems, and cultural attitudes toward pronunciation. Findings not only provide original empirical data in World English research but also produce feasible solutions on the need to develop applicable recommendations in the development of the Pakistani ELT curriculum, teacher training improvement and cross-cultural pedagogical exchange programs. These findings confirm that Pakistani English prosody constitutes a systematic variety feature while demonstrating that prosodic development remains environmentally plastic and responsive to context.

Keywords: comparative study, intonation patterns, cross-cultural analysis, qualitative case study, EFL contexts

1. Introduction

The English language acts in strikingly different sociolinguistic ecologies in Pakistan and China, which present distinctive surroundings in terms of the development of pronunciation. In Pakistan, English is an official language and a medium of elite education in the Outer circle of (Kachru, 1985) and has acquired specific localized characteristics due to a long-term exposure to the Urdu and Punjabi languages and regional languages (Mahboob, 2009; Rahman, 2021). English is used in China as a foreign language (Expanding Circle) intended to promote international communication, but Mandarin is the most widespread among nations (Bolton and Graddol, 2012; Hu, 2019). These inherent differences provide natural laboratory to analyze the influence of educational context on the development of prosodic development.

The present comparative study pays special attention to Lahore, Pakistan and Nanjing, China as the countries of research. Lahore is the cultural capital of Pakistan with a population of more than 11 million people; most of the middle and upper classes use English as a medium of instruction in their private educational establishments (Rahman, 2021). The multilingual nature of the city (dominated in Punjabi, official in Urdu, prestigious in English) provides a complicated linguistic ecology that affects the language of pronunciation in English. As the capital of Jiangsu Province and population in 8+ million, Nanjing is one of the key educational centers of China, and it has many universities and international programs, which Pakistani students have been enrolling in as a part of China-Pakistan Economic Corridor (CPEC) projects (Li and Wang, 2020; Zhang and Ahmad, 2021). In Nanjing Pakistani students are exposed to Mandarin-dominant learning environment where English is taught in communicative styles as opposed to the grammar contrast of Lahore.

In both settings, Grade 9-10 students (ages 14-16) encounter a critical juncture in which English proficiency gradually becomes a marker both of academic and professional career. Nevertheless, suprasegmental aspects consistently receive little systematic attention in the teaching of pronunciation in both environments, as they are important features of comprehensibility and effectiveness in communication (Derwing and Munro, 2015; Hassan and Qureshi, 2022; Wei and Zhou, 2020). This comparative work looks at the issue of how these opposing environments influence the development of intonation or not.

Although much has been already researched on the lexical and grammatical aspects of the Pakistani English and the Chinese EFL pronunciation issues (Baumgardner, 1993; Mahboob, 2009; Wang and Munro, 2004; Wei and Zhou, 2020), no systematic comparative study has

examined Pakistani English prosody across domestic and international learning contexts. This gap is significant: (1) no cross-context study has compared Pakistani English prosodic patterns between homeland and international settings; (2) there is minimal understanding of how suprasegmental instruction is approached — or consistently neglected — in either context; (3) no qualitative evidence documents how pedagogical practices shape prosodic development across these two distinct environments. Without addressing these gaps, it is impossible to fully understand the environmental and substrate factors that shape Pakistani English prosody.

1.1. Research Objectives

The objectives of this study are as follows:

- To make a comparison and contrast between the patterns of intonation in Pakistani teachers of English and Grade 9-10 students in Lahore, Pakistan and Nanjing, China using qualitative case study analysis.
- To isolate context-relativistic (pedagogical, environmental, cultural) processes to determine the prosodic similarities and differences across sites.
- To compare the perceptions and awareness of the participants on the role of intonation in classroom communication.
- To produce evidence-based context-based recommendations to use in the prosodic instruction to be applied in both domestic and international learning environments.

1.2. Research Questions

Guided by the mentioned objectives, this study addresses the following research questions:

- RQ1: How do the intonation patterns of Pakistani English speakers differ between the Lahore and Nanjing educational contexts, and what specific prosodic features characterize each setting?
- RQ2: What context-specific pedagogical, environmental, and cultural factors account for the prosodic similarities and differences observed across the two sites?
- RQ3: How do teachers and students in each context perceive the role of intonation in classroom communication, and what are the implications for prosodic instruction in Pakistani ELT curricula?

This comparative study carries paramount contributions. Presumably, it expands the scope of World English research by cataloguing the Pakistani English prosody in opposing situations, revealing the impact of the environment on substrate. They are qualitative and comparative, as we can also use

the methods of comparative case study to prove the value of prosodic research. In practice, both in Pakistan and China, findings are used in the development of the curriculum and in teacher training and in international student support programs. The case of Lahore and Nanjing offers practical information to Pakistani students studying abroad and Chinese universities with Pakistani students.

2. Literature Review

2.1. Pedagogical Framework: Technology Integration in Prosodic Instruction

To evaluate the quality of technology-mediated prosodic instruction observed across the two sites, this study employs the SAMR Model (Puentedura, 2006) as a secondary analytical lens. The SAMR framework categorizes technology use on a continuum from Substitution (technology replaces a traditional tool with no functional change) through Augmentation, Modification, to Redefinition (creation of new learning experiences). Applied to the present data, technology use in Lahore operates predominantly at the Substitution level: audio recordings occasionally replace live teacher modelling, but without altering the pedagogical task or providing learner feedback. Nanjing settings demonstrate Augmentation and occasional Modification, where language laboratory tools provide real-time pronunciation feedback that meaningfully extends what traditional instruction could achieve. Redefinition — the creation of genuinely new prosodic learning experiences unavailable without technology — remains largely unrealized in both contexts. In the discussion, the SAMR framework is applied specifically to characterize technology use at each site and to identify what pedagogical changes would be required to move Lahore toward Augmentation. This framework allows evaluation not merely of whether technology is present but how transformatively it supports prosodic learning goals in each context.

This paper uses the positioning of intonation of Halliday, (2004) as Systemic Functional Linguistics of interpersonal resource of meaning-making. Prosody is played to give culturally-specific authority relations in comparative classroom areas, where Pakistani classrooms often are hierarchical (Shamim, 2011) compared to Chinese areas balancing formality and interactive pedagogy (Hu, 2019). The three metafunctions of SFL ideational, interpersonal, textual allow one to examine the reception of the same linguistic content in terms of differences in prosodic realizations in different cultural settings.

2.2. Intonation in World English

The systematic Outer Circle prosodic variability is recorded in the World English research. There is a Hindi/Tamil substrate influence on Indian English where the stress and rhythm are peculiar

(Wiltshire and Harnsberger, 2006). Singapore English displays Mandarin/Malay transfer that delivers the syllable-timing and high pitch (Low & Grabe, 1999). The tone language substrates are embodied in the Nigerian English (Gut, 2005). Such researches provide methodological precedence of the documentation of Pakistani English prosody as legal variant feature. The Dynamic Model presented by Schneider (2007) proposes varieties that undergo developmental stages, and one of the last areas that could be described and made publicly available is the prosody.

2.3. Pakistani English: Lahore-Specific Studies

The Pakistani English studies focus on the lexical borrowings (Baumgardner, 1993), the code-switching (Mahboob, 2009), and the segmental phonology (Bilal et al., 2011). According to the sociohistorical analysis provided by Rahman (2021), the trilingual ecology of Lahore (Punjabi-Urdu-English) that determines the particular pronunciation patterns formation is recorded. The survey conducted by Hassan and Qureshi (2022) across Lahore secondary schools discloses that teaching pronunciation in the form of a segment is taught, and the teachers of these segments are never trained in prosody. Lahore university students with less pitch range and syllable-timing turned over between Urdu/Punjabi are recorded by Mahmood and Mahmood (2019). Nevertheless, there is no systematic classroom-based inquiry with respect to prosody.

2.4. Chinese EFL Context: Nanjing Research

Pronunciation difficulties are highly reported in Chinese EFL studies. Wei and Zhou (2020) examine Nanjing university pupils who demonstrate the Mandarin tonal transfer to English intonation. Zhang and Wang (2018) observe that pitch and rhythmic variation at high level and low levels are reflected in the sample of high-pitched pitch and less rhythmic variation of secondary school students in Jiangsu province (Nanjing region). Li and Wang (2020) report the growth of international education in Nanjing that receives Pakistani students through CPEC and did not mention pronunciation as a challenge despite communicative curriculum. Hu (2019) dissects Chinese classroom speech in which traditions of teaching the language have taken the background and turned to the interactive ones in foreign programs. Technology-based integration (language labs, pronunciation apps) is more than the Pakistani contexts (Bolton and Graddol, 2012).

2.5. Comparative Cross-Cultural Research

There is limited comparative research in the field of prosodics. *Lingua Franca Core* by Jenkins (2000) establishes attributes of essential international intelligibility, stating that intonation has

a predominantly attitudinal role and no basic comprehension influence, which Derwing and Munro (2015) also dispute with proof of prosody's effectiveness of comprehension. Deterding and Kirkpatrick (2006) make comparisons of Southeast Asian English that show systematic variation and which nevertheless are mutually intelligible. Nevertheless, comparative prosodic studies between Pakistan and China practically do not exist although bilateral educational exchange is growing. This research paper will fill this gap.

Table 1 synthesizes the key literature informing this study across five dimensions: author, context, focus, key finding, and relevance. Taken together, these works establish that prosodic variation in Outer and Expanding Circle English is systematic rather than deficient, that substrate L1 transfer is well-documented across multiple contexts, and that comparative prosodic studies — particularly between Pakistani and Chinese EFL settings — remain a critical gap in the field.

Table 1. Comprehensive Literature Synthesis

Author(s)	Year	Context	Focus	Key Finding	Relevance
Kachru	1985	World English	Three Circles Model	Legitimizes variety-specific features	Theoretical framework
Halliday	2004	SFL Theory	Functional grammar	Intonation realizes interpersonal meaning	Analytical lens
Rahman	2021	Pakistan/Lahore	English history	Documents multilingual ecology	Local context
Mahboob	2009	Pakistan	Pakistani features	Systematic variety characteristics	Variety legitimacy
Hassan & Qureshi	2022	Pakistan	Pronunciation pedagogy	Prosody neglected; teacher training gap	Educational context
Bilal et al.	2011	Pakistan	Pronunciation problems	Segmental focus; prosody minimal	Research gap
Wei & Zhou	2020	Nanjing/China	EFL pronunciation	Tone transfer; prosodic challenges	Chinese context
Li & Wang	2020	Nanjing	Pakistani students	CPEC educational exchange	Comparative basis
Hu	2019	China	EFL pedagogy	Gradual methodological shifts	Teaching context
Low & Grabe	1999	Singapore	Prosodic comparison	Rhythm metrics for variety analysis	Methodological model
Derwing & Munro	2015	International	Prosody & intelligibility	Suprasegmental crucial	Pedagogical priority
Jenkins	2000	ELF	Pronunciation core	Prioritizes segments over prosody	Contested position
Wiltshire & Harnsberger	2006	India	L1 transfer	Systematic substrate influence	Comparative parallel
Gut	2005	Nigeria	Prosodic features	Tone language transfer	World English model
Bolton & Graddol	2012	China	English in Asia	EFL expansion & technology	Regional context

3. Research Methodology

3.1. Research Design: Qualitative Comparative Case Study

This investigation employs qualitative comparative case study design (Yin, 2018) with survey research providing supplementary descriptive data (Appendix A and Appendix B). Two bounded cases—Lahore secondary classrooms and Nanjing international programs enable systematic cross-context comparison. The research paradigm is interpretivist, acknowledging prosodic patterns as socially constructed phenomena shaped by cultural practices and participant meaning-making (Creswell, 2013).

Table 2 presents the contextual comparison between Lahore and Nanjing across fourteen dimensions. Several differences are structurally significant for interpreting the prosodic patterns that follow. Technology access in Lahore is limited, with teachers relying primarily on traditional textbooks and occasional audio materials; Nanjing, by contrast, offers extensive language laboratories, pronunciation apps, and multimedia resources — a disparity directly reflected in the survey finding that only 23% of Lahore participants report that technology helps their pronunciation, compared to 72% in Nanjing. Oral assessment accounts for only 10 to 15 percent of marks in Lahore schools versus 30 to 40 percent in Nanjing international programmes, providing far weaker institutional incentive for prosodic development in the Pakistani domestic context. Class sizes also differ sharply: an average of 40 students per class in Lahore versus 25 in Nanjing international programmes — a difference that directly constrains opportunities for individual pronunciation feedback. The medium of instruction diverges as well: English is used in Lahore’s private schools, while Mandarin remains primary in Nanjing, with English used only in select international programmes. These structural differences are central to understanding the prosodic awareness patterns that emerge in the survey and interview findings reported below.

Table 3 summarizes the participant distribution across both research sites. The sample reflects the access constraints of each setting: 75 of the 100 survey participants were drawn from Lahore and 25 from Nanjing, corresponding to the larger Pakistani student population available at the domestic site. In terms of L1 background, 57 participants across both sites reported Urdu as their first language while 43 reported Punjabi, broadly reflecting Lahore’s trilingual demographics. For in-depth qualitative analysis, 8 teachers and 12 students were selected as information-rich cases, with a deliberate imbalance toward Lahore (5 teachers, 9 students) to reflect the greater linguistic complexity and variation within the domestic context.

Table 2. Comprehensive Lahore-Nanjing Contextual Comparison

Dimension	Lahore, Pakistan Context	Nanjing, China Context
Geographic Setting	Punjab province capital; 11+ million population; cultural center	Jiangsu province capital; 8+ million; educational hub
Linguistic Environment	Trilingual: Punjabi (dominant), Urdu (official), English (elite)	Monolingual: Mandarin dominant; English foreign language
Educational System	British colonial legacy; O-levels/Matric dual system	Centralized Gaokao system; growing international programs
English Status	Official language; Outer Circle; nativized variety	Foreign language; Expanding Circle; exam-oriented
Medium of Instruction	English in private schools; Urdu in government	Mandarin primary; English in select international programs
Schools Sampled	3 private schools (2 O-level, 1 Matric system)	2 universities with international preparatory programs
Class Size	Average 40 students per class	Average 25 students per international class
Teacher Background	Pakistani nationals; BA/MA English; minimal phonetics training	Mixed: Chinese English teachers + some native speakers
Curriculum Orientation	Exam-driven (Matric/O-level); literature & grammar focus	Communicative competence; IELTS/TOEFL preparation
Technology Access	Limited; traditional textbooks; occasional audio	Extensive: language labs, apps, multimedia resources
Pronunciation Teaching	Minimal; segmental only; no systematic prosody instruction	More systematic; includes some intonation in curricula
Assessment	Written exams dominant; oral minimal (10-15%)	Balanced; oral proficiency tested (30-40%)
Cultural Classroom Style	Hierarchical; teacher authority emphasized; formal	Formal but interactive; international peer diversity
Student Motivation	Local academic success; professional advancement	International education; overseas opportunities

Table 3. Participant Distribution across Contexts

SR No	Lahore	Nanjing	Total	Sampling Method	Key Characteristics
Teachers	15	5	20	Purposive	Minimum 3 years' experience; teaching Grades 9-10
Students Grade 9	30	10	40	Stratified	Pakistani nationality; balanced gender
Students Grade 10	30	10	40	Stratified	Pakistani nationality; Urdu/Punjabi L1
Gender (Total)	M:38, F:37	M:12, F:13	M:50, F:50	Balanced	Representative distribution
L1 Background	Urdu:45, Punjabi:30	Mixed	Urdu:57, Punjabi:43	Reflects demography	Lahore Punjabi majority
Case Study Depth	5 teachers, 9 students	3 teachers, 3 students	8 teachers, 12 students	Information-rich	Detailed interviews & journals
Age Range	14-16 years (students)	14-17 years (students)	14-17 years	Grade-appropriate	Critical development period

Table 4 presents the six data collection instruments used across both sites. The distribution of qualitative data is notably uneven: Lahore contributed 14 interviews averaging 40 minutes each, while Nanjing contributed 6 interviews averaging 35 minutes — a difference that reflects both

site-access constraints and the larger purposive sample available in Lahore. This asymmetry is acknowledged as a limitation and means that qualitative findings are proportionally richer for the domestic context. Classroom observations similarly skew toward Lahore (15 lessons versus 5 in Nanjing), while the survey questionnaire was distributed to maintain a 3:1 Lahore-to-Nanjing ratio consistent with participant numbers.

Table 4. Data Collection Instruments across Sites

Instrument	Purpose	Lahore Data	Nanjing Data	Total	Analysis Method
Semi-Structured Interviews	Explore experiences & perceptions	14 interviews (40 min avg)	6 interviews (35 min avg)	20 interviews	Thematic coding
Classroom Observations	Document naturalistic prosody	15 lessons (45 min)	5 lessons (50 min)	20 lessons	Field notes + audio
Reflective Journals	Capture ongoing awareness	9 participants (2 weeks)	3 participants (2 weeks)	12 journals	Content analysis
Survey Questionnaire	Systematic perception measurement	75 responses	25 responses	100 responses	Descriptive statistics
Focus Groups	Collaborative reflection	3 groups (5 each)	1 group (5)	20 participants	Discourse analysis
Document Analysis	Examine curricula & materials	Textbooks, syllabi	Course materials	Multiple documents	Content analysis

In both contexts (September-December 2024), data were collected at the same time, therefore, allowing a temporal equivalence. There were three privately-managed schools (two O-level, one Matric) used in Lahore as a data collection. These schools were selected through purposive sampling on the basis of three criteria: Pakistani English as the medium of instruction, inclusion of Grade 9-10 classes, and principal consent to extended observation. Government-sector schools were approached but declined participation due to administrative constraints. Two universities were used in Nanjing data collection (Nanjing University international preparatory program, Nanjing Tech University Pakistani student cohort). These institutions were identified as the two Nanjing universities with documented Pakistani student cohorts enrolled through CPEC scholarship programmes, making them the only feasible and information-rich sites for the comparative analysis. The survey questionnaire was piloted with 10 participants (5 from each site) not included in the main sample, and reviewed by two applied linguistics experts for content validity prior to full administration. Internal consistency of the Likert-scale items was assessed using Cronbach's alpha ($\alpha = .81$), indicating acceptable reliability. Interview was all in English, audio-taped, professionally transcribed. Questionnaires were done online (Google Forms) and in a paper format keeping accessibility.

3.2. Data Analysis: Comparative Thematic Approach

Thematic analysis (Braun and Clarke, 2006) used six stages that happened in a comparative way: (1) becoming familiar with the two sets of data, (2) systematic coding in each case, (3) first development of themes in that case, (4) second review of the themes evidence of convergences and divergences, (5) third refinement of the themes in cross context, and (6) integrated reporting. Coding was conducted by the first author, with a 30% subset of interview transcripts independently coded by a second researcher to ensure reliability; disagreements were resolved through discussion until consensus was reached, yielding a final inter-rater agreement of 87%. NVivo 12 was used to organize all coded data, manage node hierarchies, and generate the cross-site query outputs that informed the comparative matrices.

3.3. Trustworthiness & Ethics

3.3.1. Credibility

Extended time spent (4 months per site), triangulation using 6 instruments, member checking, involving 30 percent of interviewees, thick description of the surrounding context, peer debriefing and reflexive journaling to reveal researcher positionality. It should also be noted that this study relies on qualitative observation and participant self-report rather than instrumental acoustic measurement; claims about pitch range and intonation contours are therefore inferential rather than objectively measured. Future research should integrate acoustic phonetic analysis (e.g., Praat software) to provide objective corroboration of the prosodic patterns identified here. Ethics: Education Nanjing University and University of Lahore ethics board approvals, informed consent of all participants, parental consent of minors, voluntary participation, and right to withdraw, Pseudonymization and confidentiality, encrypted data storage.

3.3.2. Ethical Considerations

This study was conducted in full compliance with established ethical standards for research involving human participants, including minors. Formal ethical clearance was obtained from the Research Ethics Committees of the University of Lahore (Pakistan) and Nanjing University (China) prior to data collection. In Pakistan, additional approval was secured from school principals; in China, the study protocol was reviewed by the respective universities' International Student Affairs Offices.

Since the study involved Grade 9-10 students (ages 14-17), written informed consent was obtained from the parents or legal guardians of all student participants. Students received age-appropriate explanations and their assent was secured. All teacher participants provided individual written consent. Participation was entirely voluntary, and all participants were informed of their right to withdraw without consequence. All participants were assigned pseudonyms, no personally identifiable information was recorded, and all data were stored on password-protected encrypted servers accessible only to the research team.

4. Results and Findings

4.1. Lahore Context: Key Findings

The participants in Lahore were also consistent in their reports of zero explicit prosodic instruction. One of the teachers who mentioned this, Teacher Fatima (12 years' experience) said: 'I had never been taught how to teach intonation. This was the course on grammar only at the universities. One of the students, Ahmad, commented: "My speech sounds as a robot. Teacher does not teach how to make voice musical." It was found to have little movement in pitch, syllable based rhythmic similar to Urdu transfer and upstanding terminals in declaratives similar to Urdu interrogative patterns. The awareness of the survey was very high 87 percent of all answered yes to the following question: teacher intonation influences the comprehension and 89 percent answer the question yes to the following one: teachers never explain intonation rules.

4.2. Nanjing Context: Contrasting Patterns

Multilingual exposure resulted in more metalinguistic awareness in Nanjing participants. Student, Ayesha reported: Chinese students do not sound like other English speakers, more rhythmic. Makes me detect myself in patterns.' Teacher Li (Chinese national teaching Pakistani students) commented: 'Pakistani students are not good with English rhythm yet here are more conscious than in Pakistan-based generation than is reported. Nevertheless, direct teaching was still at a minimum in Nanjing: three-quarters of the participants admitted insufficient teaching of prosody, although communicative school curriculums existed. The access to technology (language labs, pronunciation apps) was significantly higher when compared to Lahore.

4.3. Comparative Survey Results

Table 5 presents the comparative survey results across the two contexts with chi-square statistics indicating the significance of cross-context differences. Three findings stand out as particularly

important. First, the technology disparity is striking: only 23% of Lahore participants agreed that technology helps their pronunciation, compared to 72% in Nanjing — a highly significant difference ($\chi^2 = 24.56, p < .001$). This is the largest cross-context gap in the entire dataset and reflects the structural technology access differences documented in Table 2. Second, the finding on environmental influence on prosodic awareness is central to the paper’s argument: 76% of Nanjing participants agreed that their environment influences their prosodic awareness, compared to only 41% in Lahore ($\chi^2 = 12.34, p < .001$), confirming that multilingual peer exposure produces measurably higher metalinguistic awareness. Third, the item “My speech sounds monotonous” yielded significant cross-context differences: 84% of Lahore participants agreed versus 68% in Nanjing ($\chi^2 = 4.12, p = .04$). This finding is directly relevant to the study’s argument about limited pitch variation and Urdu/Punjabi L1 transfer producing syllable-timed, flatter prosodic patterns in the domestic context. Notably, items relating to the desire for intonation instruction (92% Lahore, 84% Nanjing) and teacher intonation affecting comprehension (87% Lahore, 76% Nanjing) did not reach statistical significance, indicating that awareness of intonation’s importance is broadly shared across both contexts, regardless of environment.

Table 5. Comparative Survey Results (Lahore VS Nanjing)

Survey Item (Agreement %)	Lahore	Nanjing	Overall	Chi-Square
Teacher intonation affects comprehension	87%	76%	84%	$\chi^2=2.43, p=.12$
I want intonation instruction	92%	84%	90%	$\chi^2=1.89, p=.17$
My speech sounds monotonous	84%	68%	79%	$\chi^2=4.12, p=.04^*$
Teachers never explain intonation	89%	78%	86%	$\chi^2=2.71, p=.10$
Environment influences my awareness	41%	76%	51%	$\chi^2=12.34, p<.001^{**}$
Technology helps pronunciation	23%	72%	38%	$\chi^2=24.56, p<.001^{**}$
Confident in spoken English	34%	52%	39%	$\chi^2=3.45, p=.06$

* $p < .05$, ** $p < .01$

Table 6 and figure 1 synthesize the cross-context thematic patterns identified through reflexive thematic analysis. Six themes were identified across both sites. L1 Transfer is strong in Lahore, where Urdu and Punjabi substrate features produce syllable-timing and limited pitch variation, but is present in a moderated form in Nanjing, where multilingual exposure reduces — though does not eliminate — these patterns. The Instructional Gap theme reveals a striking convergence: prosodic teaching is completely absent in Lahore and remains minimal in Nanjing

despite better resourcing, indicating a systemic rather than resource-driven problem. Teacher Awareness is very limited in both contexts, though slightly higher among Chinese teachers in Nanjing who have had more exposure to communicative methodologies. Technology Integration diverges sharply, with Lahore reliant on traditional textbooks and Nanjing offering language laboratories and pronunciation software — consistent with the SAMR analysis identifying Lahore at Substitution level and Nanjing at Augmentation. Metalinguistic Awareness is low in Lahore due to limited comparative exposure but measurably higher in Nanjing, where peer interaction with diverse English speakers catalyzes self-monitoring. Finally, Confidence Impact reflects psychological as well as pedagogical differences: Lahore participants report significantly higher pronunciation anxiety, while Nanjing participants describe the international environment as moderately supportive of prosodic risk-taking.

Table 6. Thematic Analysis: Cross-Context Patterns

Theme	Lahore Manifestation	Nanjing Manifestation	Comparative Insight
L1 Transfer	Strong Urdu/Punjabi influence; syllable-timing dominant	Present but moderated by multilingual exposure	Environmental exposure cannot eliminate but can moderate transfer
Instructional Gap	Complete absence of prosody teaching	Minimal teaching despite better resources	Systemic neglect transcends resource availability
Teacher Awareness	Very limited; no training background	Slightly higher among Chinese teachers	Training systems differ but both inadequate
Technology Integration	Rare; traditional methods dominant	Extensive; language labs, apps, software	Infrastructure disparity creates opportunity gap
Metalinguistic Awareness	Low; limited comparative exposure	Higher through multilingual peer interaction	Diverse environment catalyzes awareness
Confidence Impact	Low confidence; pronunciation anxiety	Moderately higher; international context supportive	Environment affects psychological factors

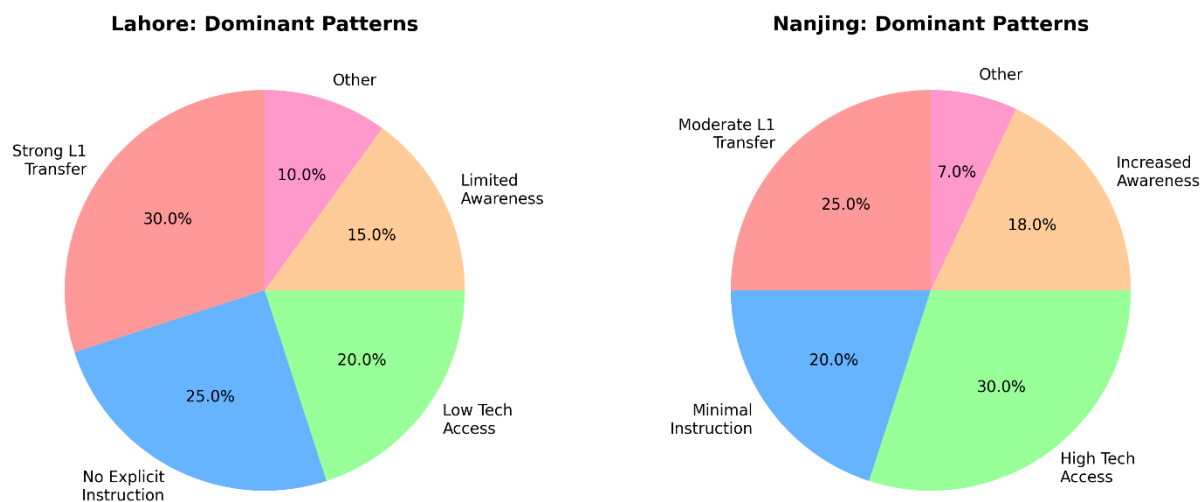


Figure 1. Thematic Pattern Distribution across Contexts

5. Discussion

Comparative Synthesis: Why Does Environmental Context Shape Prosodic Development?

The central contribution of this study lies not merely in documenting that prosodic patterns differ between Lahore and Nanjing, but in explaining why. In Lahore, English occupies Outer Circle status (Kachru, 1985), functioning as a nativized variety embedded in local identity. The Urdu/Punjabi substrate influence on intonation is a systematic, socially ratified feature (Mahboob, 2009; Rahman, 2021), not a mere error. The exam-driven curriculum rewards grammatical accuracy over communicative fluency, offering no structural incentive for prosodic development.

In Nanjing, the multilingual peer environment acts as an inadvertent prosodic laboratory. Pakistani students encountering varied English speakers develop heightened metalinguistic awareness because their prosodic patterns are marked relative to these inputs. This aligns with Derwing and Munro's (2015) argument that comprehensibility challenges motivate prosodic self-monitoring. However, environmental exposure alone is insufficient; explicit pedagogical intervention remains essential.

The technology disparity (23% vs. 72% reporting technology helps pronunciation, $p < .001$) represents a structural opportunity gap that is usefully understood through the SAMR framework. In Lahore, technology use operates at the Substitution level: when audio materials are used at all, they replace live teacher modelling without changing the pedagogical task, providing no learner feedback and no interactivity. This represents the lowest level of technological integration and explains why technology has little impact on prosodic development in this setting. Nanjing operates at Augmentation and occasional Modification: language laboratory tools provide real-time pitch feedback and allow learners to compare their intonation curves against target models — a functional enhancement unavailable through traditional means. However, even Nanjing has not reached Redefinition, where technology would enable genuinely new learning experiences such as cross-site prosodic exchange or AI-mediated intonation coaching. Moving Lahore teachers from Substitution toward Augmentation would not require expensive infrastructure: free tools such as Praat software, which can display pitch contours visually, could provide meaningful enhancement with minimal cost. The barrier is not access but pedagogical knowledge of how to use such tools for prosodic goals.

The cross-context findings confirm that strong L1 transfer persists in both settings, but the mechanisms maintaining it differ. In Lahore, Urdu and Punjabi substrate influence on intonation is reinforced — rather than challenged — by an exam-driven curriculum that rewards grammatical accuracy and provides no structural incentive for prosodic experimentation. Crucially, the absence of prosodic instruction in Lahore is not primarily a resource problem: it reflects a curriculum design and teacher training failure. Teachers like Fatima, with twelve years of experience, received no phonetics training at university and therefore cannot teach what they were never taught. This points to a systemic gap upstream of the classroom, in teacher education programmes and national curriculum frameworks, that cannot be addressed through technology access alone (Hassan and Qureshi, 2022; Rahman, 2021).

The Nanjing finding requires a more specific explanation than multilingual exposure alone. What is happening in those peer interactions that produces heightened metalinguistic awareness? The data suggest three mechanisms: first, Pakistani students hear a different English rhythm from Chinese peers speaking with Mandarin tonal influence and become conscious of their own prosodic markedness by contrast; second, communication difficulties in multilingual settings create immediate feedback when intonation patterns are misread, motivating self-monitoring; and third, being identified as different — as a foreign speaker within a foreign-language environment — heightens self-awareness of pronunciation in ways that a monolingual Lahore classroom does not provoke. Yet despite these environmental advantages, explicit prosodic teaching remains minimal in Nanjing. This is explicable: communicative curricula and IELTS preparation courses in Nanjing focus on fluency and vocabulary, and Chinese EFL teacher training, like its Pakistani counterpart, does not typically include suprasegmental instruction (Wei and Zhou, 2020).

The shared instructional gap across both contexts, despite substantial differences in resources, points to a systemic problem that transcends national setting. Both Chinese and Pakistani EFL teacher education programmes prioritize grammar and vocabulary, and neither provides systematic training in suprasegmental instruction. This explains why Nanjing's communicative curriculum and technology infrastructure have not translated into explicit prosodic teaching: teachers cannot teach what they have not been trained to teach. Where professional development opportunities for pronunciation instruction do exist, they are typically voluntary — meaning they attract teachers who are already motivated, while those who most need retraining remain unreached. Mandatory integration of phonetics and suprasegmental

instruction into initial teacher education in both countries is therefore a higher-priority intervention than additional technology provision. This pattern conforms to international trends whereby suprasegmental features receive inadequate attention despite consistent evidence of their importance for intelligibility (Hu, 2019; Shamim, 2011). This conforms to international trends whereby suprasegmental are not given adequate consideration even after they are reported to be very important (Derwing and Munro, 2015).

Technology access alone does not guarantee prosodic improvement, as Nanjing students demonstrate: despite greater resources, they still report insufficient prosodic instruction. Effective prosodic pedagogy must combine environmental diversity, explicit instruction, purposeful technology use, and systematic teacher training — none of these factors operates effectively in isolation.

Cross-context comparison throws light on environmental plasticity: prosodic expansion of awareness among the Pakistani students when exposed to multilingual environment in Nanjing, the environmental influence is said to drive development but not necessarily. This confirms the World English views that varieties form as a result of the continued contextual interplay but retain the substrate effects (Kachru, 1985; Schneider, 2007).

6. Conclusion

6.1. Theoretical Implications: SFL, World English and Prosodic Pedagogy

Within Halliday's (2004) Systemic Functional Linguistics, the interpersonal Meta function of intonation is demonstrably shaped by classroom cultural ecology. The hierarchical authority structure of Lahore classrooms (Shamim, 2011) suppresses prosodic experimentation. Nanjing's more interactive pedagogical culture creates greater opportunities for prosodic risk-taking, even if not yet systematically harnessed.

Within World English research, this study advances empirical documentation of Pakistani English prosody as a legitimate, systematic variety feature (Kachru, 1985; Schneider, 2007) while arguing that variety legitimacy does not preclude prosodic development. Treating all substrate-influenced features as errors undermines learner confidence; explicitly discussing which prosodic features enhance international intelligibility (Derwing and Munro, 2015) empowers learners to make informed choices.

6.2. Practical Recommendations for Practitioners

Drawing from the empirical findings, three evidence-based recommendations are offered for teachers in both contexts:

Recommendation 1: Integrate explicit intonation instruction through daily prosodic drills. This study found that 89% of Lahore and 78% of Nanjing participants reported teachers never explain intonation rules, yet 92% and 84% respectively desired such instruction. A five-minute warm-up activity producing the same sentence with different intonation contours (statement, question, surprise) requires no additional technology and is immediately actionable in both contexts.

Recommendation 2: Use peer comparison activities to leverage multilingual environments as prosodic resources. Nanjing data showed multilingual peer interaction produces significantly higher metalinguistic awareness ($\chi^2=12.34, p<.001$). Lahore teachers can replicate this through structured cross-accent listening activities comparing recordings of Pakistani, Chinese, British, and American English speakers, building metalinguistic vocabulary simultaneously.

Recommendation 3: Introduce a prosodic criterion into oral assessment within existing exam structures. Lahore schools allocate only 10-15% of marks to oral performance. A two-point prosodic rubric evaluating pitch variation and emphasis marking directly responds to the finding that 84% of Lahore students describe their speech as sounding monotonous with no corresponding instructional response.

6.3. Summary of Findings

This comparative study documents systematic differences in Pakistani English intonation patterns, pedagogical practices, and learning environments between Lahore and Nanjing. Both contexts show strong L1 transfer from Urdu and Punjabi, a near-complete absence of explicit prosodic instruction, and participant awareness of intonation's importance that far exceeds the instruction they receive. The key divergence lies in the degree of metalinguistic awareness, technology access, and environmental exposure: Nanjing participants demonstrate measurably higher prosodic self-awareness driven by multilingual peer interaction, while Lahore participants are constrained by exam-oriented curricula, limited technology, and no comparative prosodic exposure. Together, these findings advance World English research by providing the first systematic cross-context comparison of Pakistani English prosody in

domestic and international settings, and generate evidence-based recommendations directly applicable to Pakistani ELT curriculum development and teacher training.

6.4. Limitations

Several methodological limitations should be considered. First, sampling is concentrated in two specific urban centers; Lahore and Nanjing may not represent Pakistani English prosody in rural areas, smaller cities, or other international contexts. The Nanjing findings reflect a specific CPEC-driven cohort rather than Pakistani international students broadly.

Second, the four-month data collection window (September-December 2024) captures a cross-sectional snapshot rather than longitudinal development. Longitudinal designs are needed to confirm whether higher metalinguistic awareness in Nanjing translates into measurable prosodic improvement over time.

Third, this study relies on qualitative and survey-based methods. Claims about pitch range and intonation contours are based on researcher observation and participant self-report rather than instrumental acoustic measurement. Future research should integrate acoustic phonetic analysis (e.g., Praat software) to provide objective corroboration.

Fourth, the sample size differential (75 Lahore vs. 25 Nanjing survey respondents) reflects access constraints and limits statistical power. Finally, researcher positionality as a Pakistani scholar with insider knowledge of Lahore educational culture may have influenced interpretation; reflexive journaling and peer debriefing were employed throughout to mitigate this risk.

6.5. Recommendations

Pakistan (Lahore): Incorporate prosodic modules into the national curriculum; develop teacher training including phonetics and suprasegmental instruction; leverage freely available technology tools such as Praat and mobile pronunciation apps; and introduce oral assessment rubrics with prosodic criteria in Matric and O-level examinations.

China (Nanjing): Complement existing technology access with systematic prosodic pedagogy; train Chinese instructors in suprasegmental features specific to Pakistani English; develop culturally responsive materials acknowledging Pakistani English as a legitimate variety; and establish structured peer mentoring programs leveraging the multilingual environment.

Bilateral Exchange: Implement teacher exchange programs between Lahore and Nanjing; develop shared online pronunciation resources; and create virtual student-exchange activities building prosodic awareness through cross-cultural interaction.

Future Research Agenda: Conduct acoustic phonetic research to corroborate these qualitative findings; design longitudinal studies tracking Pakistani students across international contexts; extend the framework to other Pakistan-China city partnerships; and investigate prosodic development among Pakistani diaspora communities globally.

Disclosure Statement

The authors declare that there is no conflict of interest regarding the publication of this article. No financial, personal, or professional relationships have influenced the research, analysis, or conclusions presented in this work.

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Appendix A: Survey Questionnaire Instrument

The following 20-item survey was administered to all participants (n = 100). Items were rated on a five-point Likert scale: 1 = Strongly Disagree to 5 = Strongly Agree.

Section 1: Perceptions of Intonation Importance (Items 1-5)

Item 1: Intonation (the rise and fall of the voice) is important for effective English communication.

Item 2: My teacher's intonation pattern affects how well I understand the lesson.

Item 3: Students who use varied intonation are perceived as more confident and fluent speakers.

Item 4: Intonation is as important as grammar and vocabulary in spoken English.

Item 5: I am aware of the difference between statement intonation (falling) and question intonation (rising).

Section 2: Instructional Experience (Items 6-10)

Item 6: My English teachers explicitly teach intonation patterns in class.

Item 7: I have received direct feedback on my intonation from a teacher.

Item 8: My school's curriculum includes specific activities for practicing intonation.

Item 9: I would benefit from more explicit instruction in English intonation.

Item 10: Teachers in my context are adequately trained to teach intonation and suprasegmental features.

Section 3: Self-Assessment of Prosodic Skills (Items 11-15)

Item 11: My spoken English sounds monotonous (lacking in pitch variation).

Item 12: I am confident in my ability to use appropriate intonation when speaking English.

Item 13: My first language (Urdu/Punjabi) influences the way I use intonation in English.

Item 14: I find it difficult to change my intonation patterns when speaking English.

Item 15: I can distinguish between intonation patterns of different varieties of English.

Section 4: Environmental and Technological Factors (Items 16-20)

Item 16: My learning environment (classroom, peer interactions) has influenced my English intonation.

Item 17: Exposure to native or varied English speakers has helped me develop better intonation.

Item 18: I use technology (apps, online videos, pronunciation software) to practise English pronunciation.

Item 19: Access to pronunciation technology (language labs, apps) would help me improve my intonation.

Item 20: The current assessment system in my school encourages improvement in spoken English intonation.

Appendix B: Semi-Structured Interview Protocol

The following protocol guided semi-structured interviews ($n = 20$). Interviews were conducted in English, lasted 35-40 minutes on average, audio-recorded with consent, and professionally transcribed.

Section 1: Background and Teaching/Learning Experience

Q1: How long have you been teaching/studying English? Can you describe your English learning background?

Q2: What aspects of English do you focus on most? Where does pronunciation fit?

Q3: Have you ever received explicit instruction in English intonation?

Section 2: Perceptions of Intonation in the Classroom

Q4: How important do you think intonation is for effective communication in English? Why?

Q5: Do you notice differences in intonation between Pakistani English and other varieties?

Q6: Does intonation come up explicitly in your classroom? If not, why not?

Section 3: Environmental and Contextual Influences

Q7 (Nanjing only): Has being in China affected the way you use or think about English intonation?

Q8: How does the Lahore/Nanjing environment shape Pakistani students' English pronunciation development?

Q9: Do students have access to native-speaker English models? How does this affect pronunciation?

Section 4: Technology and Resources

Q10: What technology or resources do you use to support English pronunciation?

Q11: Are there specific tools you wish you had access to for developing intonation skills?

Section 5: Recommendations

Q12: What is the single most important change that could improve intonation instruction in your context?

Q13: What advice would you give to Pakistani students about developing their English intonation?