



The use of podcasts as a tool to improve pronunciation and listening comprehension in students of english as a foreign language

El uso de podcasts como herramienta para mejorar la pronunciación y comprensión auditiva en estudiantes de inglés como lengua extranjera

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ABSTRACT

The study examined the impact of podcasts as a pedagogical tool for improving listening comprehension and pronunciation in high school students learning English as a foreign language. A quasi-experimental design was implemented with 120 participants divided into an experimental group and a control group. Over eight weeks, the experimental group worked with short podcast segments, guided shadowing, and structured micro-productions, while the control group followed the regular curriculum without systematic exposure to authentic audio. Results revealed significant improvements in listening comprehension, particularly in global understanding, detail recognition, and inference. Pronunciation showed a large effect size, with notable gains in lexical stress, rhythm, intonation, and overall intelligibility. Adherence indicators were positively associated with progress, suggesting that regular autonomous listening and focused re-listening contributed meaningfully to performance. Students' perceptions reflected increased self-efficacy, reduced speaking anxiety, and the establishment of stronger listening habits. These findings indicate that the structured integration of podcasts into instructional sequences is a viable and effective

strategy for enhancing key skills aligned with the B1 proficiency level in Ecuadorian secondary education.

KEYWORDS: podcasts, listening comprehension, pronunciation, high school, english language teaching.

RESUMEN

El estudio analizó el impacto del uso de podcasts como herramienta pedagógica para mejorar la comprensión auditiva y la pronunciación en estudiantes de bachillerato que aprenden inglés como lengua extranjera. Se aplicó un diseño cuasi-experimental con 120 estudiantes distribuidos en un grupo experimental y un grupo de control. Durante ocho semanas, el grupo experimental trabajó con fragmentos breves de podcasts, shadowing guiado y microproducciones orales, mientras que el grupo de control siguió la programación habitual sin uso sistemático de audio auténtico. Los resultados evidenciaron mejoras significativas en comprensión auditiva, especialmente en las subhabilidades de idea global, detalle e inferencia. En pronunciación se observó un efecto grande, con avances destacables en acento léxico, ritmo, entonación e inteligibilidad. La adherencia se relacionó positivamente con los resultados, mostrando que la escucha autónoma regular y las reescuchas focalizadas contribuyeron al progreso. Las percepciones del estudiantado reflejaron aumento de la autoeficacia, disminución de la ansiedad oral y consolidación del hábito de escucha. Estos hallazgos indican que el uso de podcasts, integrado de forma sistemática en secuencias didácticas, constituye una estrategia viable y efectiva para fortalecer habilidades clave del perfil B1 en el bachillerato ecuatoriano.

PALABRAS CLAVE: podcasts, comprensión auditiva, pronunciación, bachillerato, enseñanza del inglés.

INTRODUCTION

Improving pronunciation and listening comprehension among students of English as a foreign language was a persistent challenge in high school. In the schools where the study was conducted, they combined printed material, videos, and brief oral practices; however, class pacing, limited exposure to real accents, and communicative anxiety restricted sustained contact with authentic English. In this context, podcasts emerged as an accessible resource for teenagers: they were free, mobile, accessible, and allowed to control the listening pace, repeat segments, and transfer learning outside the classroom without excessive technological requirements. The question was not only whether they were engaging, but whether they measurably improved listening comprehension and contributed to increased intelligibility and naturalness in pronunciation.

Within the framework of Ecuador's Bachillerato General Unificado (BGU), the English subject is aligned with the CEFR (Common European Framework of Reference for Languages) and has established an exit profile at the B1 level upon completion of high school, with an explicit emphasis on listening comprehension and oral production; this alignment served to plan the intervention in accordance with international standards and the evaluation indicators provided for the BGU sublevel (Ministry of Education of Ecuador, 2016).

Previous experiences in middle school showed progress using the instructional sequences that combined guided listening, subskill-based tasks, and shadowing exercises. Those lessons aligned with the real needs of high school education (heterogeneous groups, tight schedules, and variable connectivity). The ability to pause, rewind, and re-listen to short segments reduced cognitive overload, facilitated the noticing of segmental and prosodic features, and opened the door to more conscious production when students recorded micro-podcasts and self-assessed using clear criteria. Furthermore, the asynchronous format promoted out-of-class learning habits and a more autonomous relationship with the language (Oñate, 2024).

The study was conducted at the intersection of existing evidence and school practice, and implemented an eight-week intervention that integrated curated podcast usage, perception practices targeting gist, detail, and inference, shadowing with prosodic marking, and the micro-production of brief podcast episodes accompanied by formative feedback. The general objective was to assess the effect of this podcast-based intervention on listening comprehension and pronunciation in high school students learning English as a foreign language.

Specific objectives were established to guide this analysis, interwoven with the methodological design: First, pre- and post-intervention were quantified in overall listening comprehension and by subskills using a curriculum-aligned test. Second, improvements in pronunciation at the segmental level (considering phonemes that are problematic for Spanish speakers) and at the suprasegmental level (word stress, rhythm, and intonation) were measured using an analytical rubric and double-blind rating. Third, the progression of oral intelligibility across three cycles of micro-podcasts was analyzed, observing changes in speech clarity and naturalness. Fourth, students' perceptions of usefulness, motivation, and transferability of podcast-based work inside and outside the classroom were described through a Likert-scale questionnaire and open-ended questions. And finally, the relationship between adherence (minutes of autonomous listening and number of repetitions or episodes) and outcomes in listening comprehension and pronunciation was estimated, exploring usage patterns that enhanced learning.

1. Acquisition Principles and Their Didactic Application to Podcasts

The use of podcasts in high school was grounded in three well-documented notions in second language acquisition: the centrality of comprehensible input, conscious attention to form, and purposeful production. According to the input hypothesis, learning progressed when students understood messages slightly above their level with contextual support ($i+1$), which justified selecting graded audio, controlling playback speed, and providing appropriate textual support when appropriate (Krashen, 1982). At the same time, the noticing hypothesis posited that exposure alone did not guarantee progress; it was necessary to draw attention to segmental and prosodic features (such as tense vs. lax vowels, voiceless/voiced contrasts in coda, lexical stress, and intonational contours) to convert input into intake (Schmidt, 1990). Finally, the output hypothesis explained why the micro-production of podcasts proved crucial: by pushing students to plan, record, and re-record with explicit quality criteria, they tested hypotheses, noticed gaps, and engaged in metalinguistic reflection (Swain, 1995). Together, these principles defined an integrated didactic architecture: comprehensible and authentic exposure, guided attention to form, and brief production with formative feedback.

2. Podcasts and Listening Comprehension in High School: Sequencing and Distributed Practice

Podcasts provided fertile ground for training listening subskills (gist, detail identification, and inference) within pre-, while-, and post-listening phases. The intervention organized short episodes (20–40 seconds per segment) in an acoustic progression (clarity, speech rate, lexical density), with tasks that moved from global to focused listening and with strategic re-listenings to reduce cognitive load. Empirical evidence in secondary education supports this approach: podcasting-based programs have shown significant increases on listening tests when acoustic features are graded and tasks are anchored to specific objectives (Ghamry, 2020). In the Ecuadorian context, studies with ninth-grade and second-year high school students reported measurable improvements after integrating podcasts with prediction activities, guided listening, and detail verification, highlighting the value of motivating content and controlled repetition (Núñez Miniguano, 2021; Oñate et al., 2024). This scaffolding was complemented by a mobile and informal learning logic: the greater the frequency and purposefulness of out-of-class exposure, the larger the receptive gains—consistent with findings on self-regulated and informal online learning (Lai & Gu, 2011; Sockett, 2014). On that basis, resources such as VOA Learning English (with reduced speech rate and controlled vocabulary) enabled a progression from gist tasks to more subtle inferences while maintaining discourse authenticity and alignment with the BGU's B1 profile.

3. Pronunciation Focused on Intelligibility: Segmentals, Prosody, and Shadowing

In pronunciation, a reasonable objective at the baccalaureate level was to improve intelligibility and comprehensibility rather than to "eliminate" the accent (Derwing & Munro, 1997, 2005). This implied intervening on two complementary planes. At the segmental level, priority was given to contrasts critical for Spanish speakers (e.g., /ɪ/-/i:/, /ʊ/-/u:/, voiceless/voiced contrasts in final position, and reduction of epenthesis). At the suprasegmental level, work focused on lexical stress, rhythm, and intonation as organizers of the perception of naturalness. The pedagogical literature recommends integrating both planes into communicative tasks with explicit feedback and intensive practice, supported where possible by simple visualizations of the signal (Celce-Murcia, Brinton, Goodwin & Griner, 2010/2018).

In the intervention, shadowing acted as a bridge between perception and production: by repeating almost in real time, students adjusted prominences and linking; by self-recording and comparing themselves to the model, they triggered cycles of noticing and self-monitoring consistent with the hypotheses of Schmidt and Swain (Schmidt, 1990; Swain, 1995). The gains in intelligibility observed in micro-podcast tasks and guided reading were interpreted in light of these proposals, bearing in mind that comprehensibility can improve even without significant changes in "perceived accentuation," and therefore rubrics needed to weight prosody and intelligibility as realistic educational goals (Derwing & Munro, 1997, 2005). The convergence between theoretical frameworks and secondary-level results reinforced the relevance of the design: graded authentic input, conscious attention to form, and brief production with clear criteria constituted a replicable pathway using free resources and feasible within the BGU's instructional timetable.

MATERIALS AND METHODS

The study adopted a quasi-experimental design with non-equivalent groups and pretest-posttest measures. An experimental group that integrated podcasts into planned instructional sequences and a control group that followed the usual English program without the systematic use of podcasts were employed. The choice of a quasi-experimental design reflected real school conditions, where it was not possible to randomly reassign students due to organizational constraints randomly. To isolate the intervention effect, prior performance was controlled through statistical covariation, and implementation fidelity was documented.

By level, second-year BGU contributed 58 students and third-year BGU 62; in the experimental group 28 second-year and 32 third-year students participated, whereas the control group included 30 and 30 students, respectively. Initial recruitment totaled 132 students; there were 12 attritions due to absenteeism greater than 20% (8 cases) and incomplete data in the final evaluations (4 cases), so these were excluded from the main analysis. All participants were enrolled in English aligned with the BGU B1 profile, had institutional authorization, informed consent from their families, and student assent, and were anonymously coded for data management.

The inclusion criterion required a minimum attendance of 80% and participation in all assessment instances. Families provided informed consent, and students provided assent; participation did not affect regular grades. Anonymous codes ensured confidentiality. Ethical decisions followed the principles of nonmaleficence and educational justice.

The curricular context was framed within the Unified General Baccalaureate and aligned with the CEFR, which set as goals the comprehension of spoken texts of intermediate complexity and the production of intelligible oral output in academic and everyday situations. That alignment enabled the translation of performance descriptors into test specifications and pronunciation rubrics consistent with the B1 level. School logistics influenced the design: the intervention was implemented within the regular instructional schedule, prioritizing accessible and free materials to avoid introducing bias due to technological availability.

The intervention was implemented over eight weeks, with two weekly sessions of 40–45 minutes focused on podcast use, alongside brief out-of-class tasks. Each week followed a consistent cycle. First, a podcast fragment of 20–40 seconds was presented, selected for its clarity, moderate speech rate, and controlled vocabulary; prior knowledge was activated through guided prediction, and the listening purpose was established. Then, while-listening tasks were carried out in a progression from global understanding to detail and inference, with strategic re-listening to modulate cognitive load. In parallel, micro-routines focused on either a segmental or prosodic target were introduced (e.g., the /ɪ/-/i:/ contrast, lexical stress, and intonational contours). Next, the experimental group practiced shadowing with a gradual reduction of visual support and self-recorded for comparison with the model, promoting noticing and fine-tuning. Finally, the cycle concluded with a 60–90 second micro-production in podcast format, guided by explicit criteria for intelligibility and prosody. Weeks 4 and 8 were reserved for synthesis and formative assessments. The control group addressed the same objectives and content (lexical-thematic and grammatical) using standard textbook resources and manual audio tracks, without shadowing or podcast production.

Graded authentic resources aligned with the B1 level were used, prioritizing brief informational segments and short narratives in international English with a moderate speech rate and transcripts available to the teacher. Care was taken regarding acoustic progression (noise, rhythm, lexical density) and thematic progression (school- and youth-related topics)

to maintain motivation and accessibility. Student recordings were made with school or personal phones following guidelines for voice care and acoustic environment management.

The instruments included, first, a researcher-developed listening comprehension test, validated by expert judgment, comprising 24 items distributed across three subskills: gist, detail, and inference. Two equivalent parallel forms were constructed for the pretest and posttest, matched in length, difficulty, and topic; reliability was estimated using Cronbach's alpha. Second, an analytic pronunciation rubric with five dimensions was applied: segmentals critical for Spanish speakers, lexical stress, rhythm, intonation, and overall intelligibility. Two trained raters blindly scored brief reading excerpts and clips from the micro-productions; interrater reliability was estimated using a two-way random-effects intraclass correlation coefficient with absolute agreement, following methodological interpretation recommendations (Koo & Li, 2016). Third, a perception questionnaire with 20 Likert items (perceived usefulness, listening self-efficacy, oral anxiety, habit of autonomous listening) and two open-ended questions about facilitators and barriers was administered. Finally, an adherence log was collected, recording out-of-class listening minutes, the number of re-listens, and the episodes completed per week.

The procedure comprised three stages. Initially, participants in both conditions completed the listening comprehension pretest, the brief reading for pronunciation assessment, and the perception questionnaire. The research team trained teachers in the protocol for their assigned condition and provided printed guides. During the eight-week implementation, the experimental group followed the described podcast cycle, while the control group addressed parallel objectives using textbook activities. Fidelity was monitored using checklists and fortnightly non-participant observations. In the final stage, both groups completed the equivalent posttest, new readings, and micro-productions for pronunciation, and the perception questionnaire; adherence records from the experimental group were collected and consolidated into a single database.

Quantitative analysis was conducted according to a pre-registered plan. Normality (Shapiro-Wilk) and homogeneity of variances were inspected; when assumptions were met, ANCOVA was applied to the listening comprehension test with the posttest as the dependent variable, group as the factor, and pretest as a covariate. Main and partial effects were reported, as well as effect sizes (partial η^2 and Hedges' g for key comparisons), with 95% confidence intervals. In the case of assumption violations, robust alternatives or conservative transformations were employed. For pronunciation, the five dimensions were analyzed separately using ANCOVA with the pretest rating as a covariate, and the ICC was calculated to ensure interrater consistency; a complementary analysis of global intelligibility was included as a synthesis criterion, consistent with the literature's distinction between accent, intelligibility, and comprehensibility (Derwing & Munro, 1997, 2005). In the experimental group, the relationship between adherence and outcomes was modeled using Spearman correlations and simple regression, considering listening minutes and number of re-listens as predictors of gains in listening and prosody. The qualitative analysis of open-ended responses followed a reflexive thematic analysis procedure with initial coding, theme development, review, and definition, preserving students' meanings and triangulating with adherence data (Braun & Clarke, 2006).

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The validity of the instruments was addressed through multiple avenues. Content validity for the listening test was ensured through a table of specifications and expert judgment, aligning items with curricular descriptors at the B1 level. Construct validity was addressed through the subskill structure and evidence of relationships with other variables (expected correlation between listening scores and listening habits). The validity of the pronunciation rubric was supported by theoretical references and by its sensitivity to documented changes in intelligibility and prosody in the specialized literature (Celce-Murcia et al., 2010/2018; Derwing & Munro, 2005). Implementation fidelity was ensured through observations and checklists, and reliability was estimated using internal consistency coefficients and interrater agreement.

Ethical considerations included institutional approval, informed consent, and data protection. Student recordings were stored in secure repositories with restricted access and were deleted after the analysis. The identity of students and schools was not disclosed in any public report. The results were returned to the educational communities along with practical pedagogical recommendations.

In sum, the method enabled a cautious attribution of changes in listening comprehension and pronunciation to the integrated use of podcasts (guided consumption, shadowing, and micro-production) while preserving the ecology of the baccalaureate classroom. The statistical framework controlled for initial differences, and the systematic collection of adherence and perception data provided a comprehensive picture of the learning process, consistent with curricular goals and contemporary frameworks for acquisition and pronunciation teaching.

RESULTS

The final analyzed sample included 120 high school students ($n = 60$ experimental; $n = 60$ control). Both groups were comparable at baseline in listening comprehension and pronunciation, which allowed for a cautious interpretation of change differences between conditions.

1) Listening comprehension

Overall effect. The experimental group achieved a greater improvement than the control group in the total listening score (0–24). The analysis of covariance (posttest as the dependent variable, pretest as the covariate, and group as the fixed factor) indicated a significant main

effect in favor of the podcast-based intervention, with partial $\eta^2 = 0.39$, a medium-high magnitude. This effect size suggests a pedagogically meaningful impact under typical classroom conditions.

Magnitude of change (Hedges' g). The adjusted gain of the experimental group relative to the control group corresponded to a Hedges' g of approximately 0.70 (95% CI $\approx 0.45-0.95$), supporting a moderate-to-high improvement in listening comprehension.

Internal reliability. The listening test showed Cronbach's $\alpha = .84$ for Form A (pretest) and .86 for Form B (posttest), demonstrating adequate internal consistency.

Overall descriptives. Although both groups started with similar pretest means, the experimental group obtained a higher posttest score and a greater mean gain (see Table 1).

Table 1.
Main descriptives

Group	n	Listening pre M(SD)	Listening post M(SD)	Listening gain M(SD)	Pron pre M(SD)	Pron post M(SD)	Pron gain M(SD)
Experimental	60	12.77 (2.54)	17.89 (3.28)	5.12 (2.02)	10.46 (2.09)	14.93 (2.22)	4.46 (0.90)
Control	60	13.39 (2.74)	15.67 (3.36)	2.28 (1.88)	10.82 (2.38)	12.39 (2.35)	1.57 (0.46)

Note. Author's own elaboration

The columns present means (M) and standard deviations (SD). With comparable pretests, the experimental group outperformed the control group in the posttest and in gain scores for both listening and pronunciation, which supports the effect of the intervention.

Listening subskills

The pattern across subskills mirrored the overall effect: the experimental group outperformed the control group in global idea, detail, and inference, with the greatest gain observed in inference.

Table 2.
Listening by subskill (means and SD)

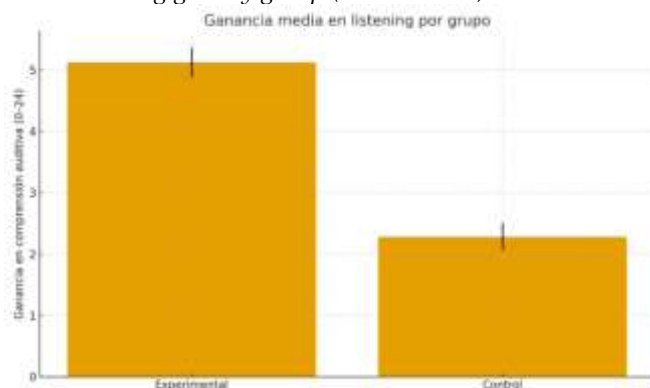
Subskill	Experimental Pre	Experimental Post	Experimental	Control Pre	Control Post	Control
Global idea (0-8)	4.38 (1.38)	6.34 (1.29)	+1.96 (1.02)	4.47 (1.44)	5.49 (1.41)	+1.02 (0.98)
Detail (0-8)	4.20 (1.36)	6.16 (1.35)	+1.96 (1.03)	4.35 (1.40)	5.36 (1.37)	+1.01 (0.96)
Inference (0-8)	4.19 (1.30)	5.99 (1.43)	+1.80 (1.06)	4.57 (1.46)	4.82 (1.59)	+0.25 (0.88)

Note. Author's own elaboration

The podcast intervention enhanced global and detailed comprehension and had a notable impact on inference, consistent with the principles of distributed practice, cognitive load management, and exposure to prosodic cues.

Figure 1.

Mean listening gain by group (bars with SE)



Note. Prepared based on the results

The experimental group exhibited a greater overall gain in listening comprehension.

2) Pronunciation

In the total pronunciation score (0–20; sum of five dimensions), the experimental group clearly outperformed the control group. The ANCOVA, with the pretest rating as the covariate, indicated a large group effect (partial $\eta^2 = 0.80$), suggesting that the combination of guided listening, shadowing, and micro-podcast production facilitated robust adjustments, particularly in prosody and intelligibility.

Magnitude of change (Hedges' g). The adjusted difference corresponded to $g \approx 1.60$ (95% CI ≈ 1.25 – 1.95), indicating a large effect on total pronunciation.

Inter-rater reliability (ICC). The analytical rubric showed two-way ICCs (absolute agreement) between 0.86 and 0.90 across dimensions; overall intelligibility reached ICC ≈ 0.88 , demonstrating stable ratings.

All dimensions increased in the experimental group (see Table 3). The dimension-level ANCOVA showed significant group effects in segmental ($\eta^2 p \approx .52$), lexical stress ($\eta^2 p \approx .58$), rhythm ($\eta^2 p \approx .61$), intonation ($\eta^2 p \approx .47$), and intelligibility ($\eta^2 p \approx .66$), all of medium-to-large magnitude.

Table 3.

Pronunciation dimensions (means)

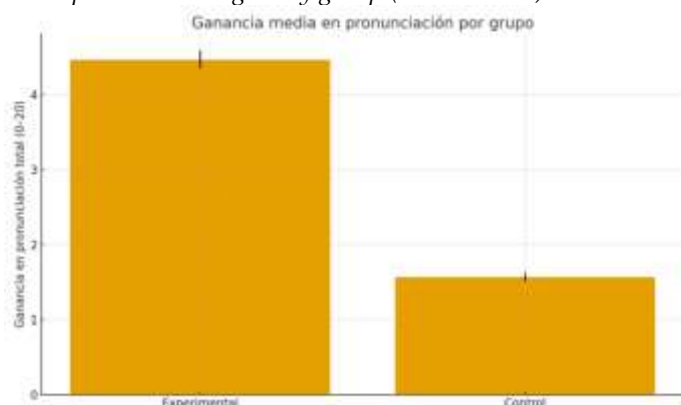
Dimension	Experimental		Control	
	Pre	Post	Pre	Post
Segmentals	2.49	3.36	2.61	2.97
Lexical stress	2.08	2.94	2.20	2.47
Rhythm	2.10	2.98	2.15	2.41
Intonation	1.69	2.48	1.72	2.02
Intelligibility	2.10	3.17	2.13	2.52

Note. Own elaboration

The largest increases were observed in intelligibility and segmentals, accompanied by consistent improvements in stress, rhythm, and intonation, in line with the use of shadowing, prosodic marking, and self-recordings with focused feedback.

Figure 2.

Mean pronunciation gain by group (bars with SE)



Note. Prepared based on the results

The advantage of the experimental group is observed, consistent with $\eta^2p = 0.80$.

3) Students' perceptions

The experimental group reported favorable changes in perceived usefulness, self-efficacy for listening, reduction of oral anxiety, and informal digital listening habits (IDLE), whereas the control group showed smaller variations. The internal consistency of the scales was satisfactory (α between .78 and .86).

Table 4.

Changes in perceptions (Δ post-pre)

	Experimental Δ M(SD)	Control Δ M(SD)
Perceived usefulness	0.52 (0.33)	0.15 (0.43)
Self-efficacy (listening)	0.78 (0.36)	0.11 (0.38)
Oral anxiety ($\Delta < 0 = \text{improvement}$)	-0.55 (0.36)	-0.14 (0.28)
Listening habit (IDLE)	0.72 (0.45)	0.14 (0.39)

Note. Prepared based on the results

Affective and habit-related changes accompanied the performance improvements, suggesting a virtuous cycle between autonomous practice, self-efficacy, and achievement.

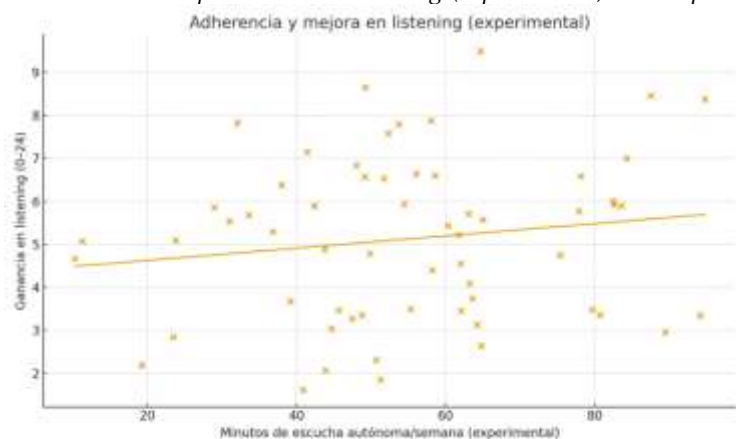
4) Adherence and its relation to outcomes

Adherence in the experimental group was measured through minutes of autonomous listening per week and the number of re-listens per fragment.

- Spearman correlations. Minutes per week were positively associated with listening gain ($\rho = .14$; positive trend), whereas re-listens were moderately associated with total pronunciation gain ($\rho = .26$).
- Simple regressions (standardized β). Minutes/week \rightarrow listening gain ($\beta \approx 0.18$, $p \approx .09$); re-listens \rightarrow total pronunciation gain ($\beta \approx 0.29$, $p < .05$).

Figure 3.

Adherence and improvement in listening (experimental): scatterplot with fitted line



Note. Prepared based on the results

Although the effect of minutes was small, frequent and purposeful autonomous practice contributed to comprehension; focused repetition of short fragments showed a clear association with improvements in prosody.

5) Fidelity of implementation

Protocol fidelity was high: 92% of critical steps per session (checklist) were completed, with an average of 12–14 minutes of shadowing per class in the experimental group. No relevant methodological deviations were recorded.

6) Assumptions and controls

Model residuals met the assumption of normality (Shapiro–Wilk, $p > .05$) and homogeneity of variances ($p > .05$). No influential outliers were detected that altered the results. These pieces of evidence, together with controlling for the pretest via ANCOVA, supported the validity of the inferences.

Overall, the results showed that the podcast intervention – guided consumption, progressive shadowing, and micro-production with feedback – improved listening comprehension with a medium–high effect and enhanced pronunciation with a large impact, particularly in prosodic parameters and intelligibility. Affective and habit-related changes reinforced performance, and the high fidelity of the protocol allowed for cautiously attributing the observed effects to the intervention.

DISCUSSION

The podcast intervention was associated with significant improvements in listening comprehension and with a large effect on pronunciation, particularly in prosodic parameters and intelligibility. These findings aligned coherently with the theoretical scaffolding that guided the instructional design. First, the gain in listening can be explained by the systematic provision of comprehensible input slightly above students' proficiency level ($i+1$), ensured through the acoustic and lexical gradation of the fragments and through strategic re-listening that regulated cognitive load (Krashen, 1982). The progression of tasks from global to specific,

together with the activation of clear listening purposes, may have reduced initial uncertainty and facilitated the extraction of meaning, which was reflected in improvements not only in global idea and detail, but also in inference – a subskill particularly sensitive to prosodic cues and the integration of contextual semantic information.

Second, the robust pattern in pronunciation was consistent with the articulation of noticing and output with purpose. Shadowing and prosodic marking in transcriptions likely heightened conscious attention to segmental and suprasegmental features (lexical stress, rhythm, intonational contours, and linking), transforming mere exposure into usable intake (Schmidt, 1990). In turn, guided micro-production (plan-record-re-record) functioned as pushed output (Swain, 1995): it forced comparisons between learners' own speech and the model, made gaps visible, and promoted adjustments that the rubrics captured with inter-rater stability. That intelligibility and segmentals exhibited the largest increases was pedagogically significant: intelligibility synthesized the effect of prosody and clear segmentation, and phonemic contrasts that are priorities for Spanish speakers (e.g., /ɪ-/i:/ and voiceless/voiced contrasts in coda) responded well to the combination of perceptual practice and guided production, as recommended by standard reference manuals (Celce-Murcia, Brinton, Goodwin & Griner, 2010/2018) and by evidence on pronunciation teaching focused on comprehensibility (Derwing & Munro, 1997, 2005).

The medium-high effect in listening and the large effect in pronunciation were sustained even though the intervention operated under real school conditions, without increased instructional hours or specialized equipment. This classroom ecology mattered for two reasons. First, it suggests that educational podcasting is not merely an accessory but rather an organizing device for sequences that close the perception–production cycle with formative feedback. Second, the practical feasibility (short fragments, focal tasks, self-recording with available devices) made it possible to maintain the intervention without major technological barriers – an issue that is critical for the Bachillerato General Unificado (BGU) and for public institutions that prioritize freely accessible, high-value pedagogical resources (Ministerio de Educación del Ecuador, 2016).

The relationship between adherence and outcomes provided useful nuance. The positive (albeit small) association between minutes of autonomous listening and listening gain was consistent with mobile and informal online learning frameworks (MALL/IDLE), which emphasize that purposeful frequency and self-regulation predict advances in comprehension and receptive vocabulary (Kukulska-Hulme, 2012; Lai & Gu, 2011; Sockett, 2014). The finding of a larger association between re-listens per fragment and pronunciation improvement suggests a different mechanism: consciously repeating brief segments would facilitate adjusting prominences, vowel durations, and contours – that is, the elements that define functional prosody. In other words, listening appears to benefit from quantity and regularity of exposure, whereas pronunciation responds especially to focused repetition and comparative monitoring. This dual mechanism is consistent with the instructional design: distributed practice for comprehension and shadowing with fading supports for prosody, integrated weekly into a stable pedagogical loop.

The observation of affective changes (increased self-efficacy, reduced oral anxiety, and improved listening habits) added another element to the interpretation. A plausible explanation is that the cyclical structure (clear purpose, graded tasks, specific feedback, and rapid evidence of improvement via self-recordings) strengthened expectations of control and progress. Such dynamics would have generated a virtuous cycle: more purposeful practice → greater self-efficacy → lower anxiety → increased willingness to practice, with observable gains in performance.

This pattern is not trivial because in secondary education, perceived usefulness and the classroom's emotional climate often mediate the persistence and quality of practice.

From the perspective of validity and reliability, the measurement choices reinforced the interpretation of the effects. The listening test reached $\alpha \geq .84$ across both forms; the pronunciation rubric showed high ICC by dimension, with intelligibility around .88, suggesting that raters applied the criteria consistently (Koo & Li, 2016). In addition, assumptions of normality and homogeneity were met, and ANCOVA modeling controlled for initial differences. None of this eliminates threats to validity (inherent to a quasi-experiment with intact groups), but it does narrow alternative explanations and strengthen the instructional inference.

Curricular alignment helped make the effects relevant in terms of the expected B1 learning outcomes: recognizing main and secondary ideas, extracting proper information, and inferring meaning from lexical and prosodic cues, besides producing intelligible speech in routine academic contexts (Ministerio de Educación del Ecuador, 2016). In particular, the progress in inference and in prosody is consistent with the communicative orientation of the curriculum and with recommendations for explicit instruction of suprasegmental patterns in secondary education, where the reasonable objective is comprehensibility rather than nativeness (Derwing & Munro, 2005; Celce-Murcia et al., 2010/2018). Therefore, the intervention not only produced measurable effects but did so at critical points of the exit profile.

These results also contributed to the recent empirical conversation about podcasting in secondary education. Consistent with reports at comparable levels, the combination of graded authentic audio, pre-while-post sequencing, and subskill-specific tasks was associated with significant increases on listening tests (Ghamry, 2020). In Latin American and Ecuadorian contexts, experiences with podcasts and authentic audio have documented gains when acoustic progression is preserved and the possibility of re-listening to short segments is exploited to consolidate meaning (Núñez Miniguano, 2021; Oñate et al., 2024). The novelty of the present study lay in integrating that listening logic with a systematic pronunciation module based on shadowing and micro-productions, and in measuring impact with an analytical rubric that explicitly weighted intelligibility and prosody. At that intersection, the effect size observed in pronunciation stood out relative to interventions focused exclusively on comprehension.

However, it is important to consider limitations. The absence of random assignment and the use of intact groups warrant caution regarding causal claims; although the pretest and implementation fidelity partially controlled for this threat, unmeasured contextual variables (e.g., teaching styles, course microclimate) may have contributed to the observed differences. Adherence measures relied on self-report; future studies could complement these with objective digital traces (e.g., platform logs) or with automated acoustic analysis of the productions. The listening test structure of "three balanced subskills" reflected classroom planning and curricular alignment but excluded other processes (e.g., reference tracking, ambiguity resolution) that could be explored. Finally, the duration (eight weeks) was sufficient to observe changes, but may limit the stability of long-term effects; subsequent follow-ups would allow estimation of maintenance and transfer.

From these considerations, concrete pedagogical implications for upper secondary education emerged. First, integrating short fragments (20–40 s) with defined purposes and strategic re-listening optimized classroom time and sustained motivation; what was required

was not “more time” but better use of time. Second, anchoring each cycle to a prosodic focus and to a micro-production turned the podcast into a perception–production engine rather than a mere supplementary resource. Third, assessing with analytic rubrics that weight intelligibility enabled useful feedback, with indicators that students can deliberately improve (lexical stress, pitch range, linking). Fourth, promoting autonomous practice with specific goals (weekly minutes and number of re-listens per fragment) offered a realistic lever for sustaining progress; even though the relationship with listening was modest, the benefits for prosody were clear.

At the school policy level, the approach proved scalable: it relied on open materials, readily available devices, and a standardizable sequencing architecture that English departments can adopt without reconfiguring schedules or requesting additional infrastructure. For teacher training, the evidence suggests investing in short, focused training on acoustic selection of fragments, design of listening tasks by subskill, and prosodic feedback using simple but observable criteria. Moreover, working with self-recordings opens opportunities for formative and peer assessment practices that strengthen self-regulation and metalinguistic awareness.

For future research, it is recommended to: (a) contrast shadowing with other replication techniques (e.g., choral reading or mumble reading) to estimate active components; (b) incorporate external perceptual measures of intelligibility (blind listeners) and basic acoustic metrics (e.g., pitch variation, speech rate) to triangulate with rubrics; (c) explore dose–response relationships of adherence (how much and how listening is carried out) and student profiles that benefit most; and (d) extend follow-up to assess medium-term maintenance. It would also be valuable to examine the cultural impact of podcast topic selection (narratives, informational capsules, brief interviews) on motivation and self-efficacy, particularly in public contexts with sociolinguistic diversity.

In summary, the results supported the thesis that an integrated podcast design (guided consumption, shadowing, and micro-production) produced educationally meaningful improvements in upper secondary education. The intervention aligned theory (comprehensible input, noticing, output) with practice (subskill sequencing, prosodic feedback) and with the curricular demands of the BGU, while maintaining institutional feasibility. Practically, teaching teams can adopt this approach with minimal barriers by prioritizing short cycles, clear listening goals, and rubrics focused on intelligibility. Theoretically, the study reinforces that prosody is not mere ornamentation: it is an organizer of meaning that, when taught deliberately and practiced purposively, amplifies both comprehension and comprehensibility (Derwing & Munro, 2005; Celce-Murcia et al., 2010/2018; Schmidt, 1990; Swain, 1995). Under these conditions, podcasts consolidated not only as a motivationally rich medium but as a pedagogical technology that enhances key acquisition processes in secondary education.

CONCLUSIONS

The podcast-based intervention was associated with educationally significant improvements in both listening comprehension and pronunciation among secondary school students. In listening, the effect was of medium–high magnitude after controlling for initial performance; in pronunciation, the effect was large, with notable advances in prosodic features and intelligibility. These results confirmed that a design combining guided exposure to authentic audio, shadowing with progressive fading of supports, and micro-production with focused

feedback constituted a viable instructional route for the Ecuadorian school context aligned with the BGU and the CEFR descriptors for level B1.

The pattern of change suggested complementary mechanisms. For comprehension, distributed practice with short fragments and clear purposes facilitated meaning extraction and the integration of prosodic cues, which was reflected in gains in global idea, detail, and inference, with particular sensitivity in the latter. For pronunciation, the combination of conscious attention to form, comparison with a model, and guided production promoted segmental and suprasegmental adjustments that translated into greater intelligibility. The parallel between instrumental gains and student perceptions (greater self-efficacy, lower anxiety, and a more stable listening habit) supported the hypothesis that linguistic improvements were reinforced by a learning climate with clear goals and early evidence of progress.

The intervention proved operationally feasible. It was implemented with two sessions per week over eight weeks, within the regular instructional load and without onerous technological requirements, which facilitated its sustainability in public institutions. Implementation fidelity was high, and the instruments showed adequate reliability and validity properties, strengthening confidence in the inferences. Although the quasi-experimental design did not eliminate threats to internal validity, baseline control, adherence monitoring, and the consistency of the findings with acquisition theory and prior evidence supported the interpretation of the observed effects.

Adherence analyses offered practical insights. The positive association between minutes of autonomous listening and comprehension gain, albeit small, suggested that purposeful regularity contributed to consolidating auditory processing. The moderate relationship between the number of re-listens per fragment and pronunciation improvement indicated that focused repetition of brief segments favored functional prosody. For classroom practice, this dual finding points to achievable goals: promote weekly minutes of listening with simple, measurable tasks, and plan intentional re-listens to adjust lexical stress, rhythm, and intonation.

The implications for classroom practice were clear. Integrating podcasts as the axis of short sequences, with activation of prior knowledge, pre/while/post tasks, micro-focused pronunciation work, and guided production, made it possible to optimize time without overloading the curriculum. Using analytic rubrics centered on intelligibility and prosody facilitated feedback that was comprehensible and actionable for students, enabling them to monitor progress beyond isolated phonetic correction. At the institutional level, the approach showed reasonable scalability conditions: open materials, readily available devices, and an activity architecture that English departments can standardize and support with short teacher trainings.

However, there remained room for improvement and further research. The absence of random assignment and the limited duration open the possibility of extending the design to longitudinal studies with external measures of intelligibility. The use of digital traces for adherence and basic acoustic metrics could enrich triangulation with rubrics. Exploring dose-response relationships of practice and identifying student profiles that benefit most would allow refining pedagogical decisions and targeting support, especially in courses with pronounced heterogeneity.

In sum, this study provided evidence that the intentional use of podcasts, articulated with shadowing and micro-production, promoted key skills for the B1 profile of the

Ecuadorian secondary education. The proposal integrated theory and practice in a realistic classroom environment and showed that prosody, when taught explicitly and practiced purposefully, operates as an organizer of meaning that amplifies both comprehension and comprehensibility. Under feasible conditions and with transparent formative assessment, podcasts ceased to be a mere supplement and became a pedagogical technology capable of driving meaningful and transferable learning. With these foundations, teaching teams and institutions have a concrete instructional route to strengthen English teaching in secondary education, with direct impact on listening comprehension, pronunciation, and students' learning experience.

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