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Yemeni EFL Advanced Learners' Performance in Process and Product-Oriented Listening Comprehension Test

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Abstract:

This study aimed to develop and validate a culturally and linguistically appropriate listening comprehension test for advanced Yemeni EFL learners, grounded in an integrative process/ product model of listening. A quantitative descriptive design was employed, involving questionnaire administration, test construction, pilot testing, and statistical validation with 60 fourth-year university students. The questionnaire identified the most essential listening micro-skills, which guided the development of a 50-item proficiency test assessing both process-oriented (bottom-up) and product-oriented (top-down) listening skills. The final test demonstrated acceptable internal consistency (Cronbach's α = .789) and construct validity through exploratory factor analysis. Descriptive results indicated that learners rated lexical and syntactic decoding skills as most important, whereas prosodic and discourse-level skills were perceived as more challenging. Although process-oriented scores were numerically higher than product-oriented ones, the difference was not statistically significant (p = .053). The findings highlighted the balanced yet complex nature of advanced listening performance and emphasized the necessity of context-sensitive listening assessment tools in low-resource EFL settings. Pedagogically, the study underscores the importance of integrating authentic listening materials and explicit strategy instruction to enhance advanced learners' integrative listening proficiency. The study contributes to both theory and practice by providing a validated, context-specific assessment tool and a model for listening test development applicable to similar EFL contexts.

Keywords: Listening comprehension, Test development, EFL, Metacognitive Strategies, Yemeni Learners.

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أداء المتعلّمين اليمنيين ذوي المستوى المتقدم في اللغة الإنجليزية في اختبار الاستماع الاستيعابي ذي المنحيين الإجرائي والإنتاجي

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الملخص:

هدفت هذه الدراسة إلى تطوير وتقييم اختبارٍ للاستماع الاستيعابي يتسق ثقافيًا ولغويًا مع متعلمي اللغة الإنجليزية كلغة أجنبية (EFL) من اليمن في المستوى المتقدم. استندت الدراسة إلى نموذج تكاملي لعملية الاستماع ومنتجه، يدمج بين المعالجة من الأدنى إلى الأعلى ومن الأعلى إلى الأدنى. استخدمت الدراسة تصميمًا وصفيًا كميًا تضمن استبانة، وبناء اختبار، وتجريبًا أوليًا، والتحقق الإحصائي بمشاركة 60 طالبًا من طلاب السنة الرابعة في الجامعة. حدّدت الاستبانة أهم المهارات الجزئية في الاستماع، والتي أُسِّس بناءً عليها اختبارٌ مكوَّن من خمسين فقرة لقياس المهارات الإجرائية (من الأدنى إلى الأعلى) والإنتاجية (من الأعلى إلى الأدنى). أظهر الاختبار ثباتًا داخليًا مقبولًا (ألفا كرونباخ = 789.) وصدق بناء من خلال التحليل العاملي الاستكشافي. بيّنت النتائج الوصفية أن المتعلمين صنّفوا مهارات التحليل المعجمي والنحوي بوصفها الأكثر أهمية، بينما اعتُبرت المهارات النبرية والخِطابية أكثر صعوبة. ورغم أن متوسط درجات المهارات الإجرائية كان أعلى من المهارات الإنتاجية، إلا أن الفارق لم يكن ذا دلالة إحصائية (p=.053) . تؤكد النتائج على الطبيعة المتوازنة والمعقدة لأداء الاستماع لدى المتعلمين المتقدمين، وتبرز الحاجة إلى أدوات تقييم تراعي الخصوصية السياقية في بيئات التعليم محدودة الموارد. تربويًا، شددت الدراسة على أهمية إدماج مواد استماع أصيلة وتعليم استراتيجيات صريحة لتعزيز الكفاءة التكاملية في الاستماع. تسهم هذه الدراسة في الإطارين النظري والتطبيقي من خلال تقديم أداة تقييم صالحة ومناسبة للسياق، ونموذج إجرائي لتطوير اختبارات الاستماع في بيئات مشابهة.

الكلمات المفتاحية: الاستماع الاستيعابي، تطوير الاختبار، استراتيجيات ما وراء المعرفية، المتعلمون اليمنيون.

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1. Introduction.

Listening comprehension constitutes a cornerstone of language proficiency in English as a foreign language (EFL) learning. It enables learners to access spoken input, acquire vocabulary and grammatical structures, and engage effectively in communicative interactions with both native and non-native speakers. Despite its central importance, listening remains one of the most neglected skills in EFL instruction in Yemen, where curricula traditionally emphasize reading and writing. This instructional imbalance has contributed to widespread difficulties among Yemeni learners in understanding authentic spoken English, thereby hindering their academic success, communicative competence, and overall language development. The complexity of listening comprehension stems from its multidimensional nature, which requires the integration of linguistic knowledge, cognitive processing, and metacognitive strategies. Learners must decode phonemes, recognize stress and intonation patterns, interpret syntactic and semantic structures, and synthesize discourse-level meaning. Concurrently, they draw upon prior knowledge, contextual cues, and expectations to negotiate meaning effectively (Rost, 2002). For advanced EFL learners, these demands are intensified, as they often encounter rapid speech, diverse accents, reduced forms, and culturally specific references- challenges rarely addressed in conventional classroom instruction (Alrabai, 2023; Al-Sharafi & Al-Mekhlafi, 2023).Current standardized listening assessments, including the Test of English as a Foreign Language (TOEFL) and the International English Language Testing System (IELTS), are largely designed for Western contexts. These tests frequently include accents, communicative situations, and cultural content unfamiliar to Yemeni learners, which may threaten both their validity and fairness (Alamri, 2025; Ramadhani et al., 2025). Moreover, traditional test formats tend to focus on discrete language skills, such as grammar, vocabulary, or phonetics, rather than integrated listening abilities essential for real-world communication (Lado, 1961; Wagner, 2024). Although discrete-point tasks facilitate objective scoring, they fail to capture the interactive and dynamic nature of authentic listening (Aryadoust & Luo, 2023; Ockey, 2024). Recent research advocates for interactive-integrated assessment tasks, such as paired or group oral interactions and computer-mediated simulations, that evaluate listening competence alongside interactional and pragmatic abilities (Ockey & Li, 2015; Lee et al., 2021; Karatay, 2022). Studies show that learners who can comprehend and respond appropriately in authentic communicative contexts tend to perform better, underscoring the importance of contextually meaningful listening assessment (Brooks, 2009; Wagner, 2014). Complementary methods, including think-aloud protocols, have illuminated how raters perceive and evaluate listening behaviors, offering valuable insight into construct representation and rater cognition (Mackay & Gass, 2015; Sahan & Razi, 2020; Jin, 2022). Despite global advances, empirical research on advanced EFL learners' listening comprehension in low-resource, non-Western settings remains scarce. In Yemen, students continue to face

persistent challenges in processing authentic English input due to limited exposure, insufficient instruction in listening strategies, and the absence of locally validated listening assessments (Alrabai, 2023; Alrefaee, 2019; Al-Harithi & Al-Aamri, 2024). Accordingly, there is a pressing need for context-specific, theory-informed assessment instruments that align with contemporary listening models and reflect the linguistic and cultural realities of Yemeni learners. The present study addresses these gaps by developing and validating a listening comprehension test tailored to the specific needs of advanced Yemeni EFL learners. The test aims to assess key listening micro-skills - including phonemic discrimination, stress recognition, word order comprehension, and discourse-level understanding - within an integrative framework combining both process-oriented (bottom-up) and product-oriented (top-down) mechanisms. Through this theoretically grounded and contextually adapted approach, the study contributes to (a) the cross-cultural validation of contemporary listening theories and (b) the development of evidence-based, context-appropriate tools for EFL instruction and assessment in low-resource environments.

The study was guided by the following research questions:

1. What are the most important listening skills for advanced Yemeni EFL learners, as perceived by the learners themselves?
2. Are there statistically significant differences between learners' performance on process-oriented (bottom-up) and product-oriented (top-down) listening skills?

The significance of this study is twofold. Theoretically, it provides empirical evidence supporting the applicability of contemporary listening comprehension models in the Yemeni EFL context, contributing to their cross-cultural validation and refinement. Practically, it offers educators, curriculum designers, and policymakers a valid, reliable, and contextually relevant tool for assessing and improving listening proficiency, thereby informing instruction, material development, and resource allocation in low-resource EFL environments.

2. Literature Review

2.1 Overview of Listening Assessment Research

Listening comprehension assessment has long been recognized as one of the most complex areas of language testing because of the construct's multifaceted nature. Traditional discrete-point approaches focus on isolated linguistic elements such as vocabulary, grammar, and phonetics, typically using multiple-choice or true/false items to measure learners' understanding of small language units (Lado, 1961; Wagner, 2024). Although such tasks are convenient to construct and score reliably, they fail to capture the interactive and dynamic nature of real-world listening, which involves simultaneous decoding, interpretation, and response (Aryadoust & Luo, 2023; Ockey, 2024). Consequently, discrete-point assessments offer only partial evidence

of learners' listening ability, especially in communicative and academic contexts. To address these limitations, scholars have increasingly emphasized interactive-integrated assessment tasks in which learners perform communicative roles such as paired discussions or group interactions, often moderated by interlocutors or computer-mediated systems (Ockey & Li, 2015; Lee et al., 2021, 2023). Advances in educational technology, such as spoken dialogue systems (SDSs), have enabled participants to engage with simulated interlocutors in realistic scenarios, thereby improving authenticity and ecological validity

(Gokturk-Tuney, 2020; Karatay, 2022; Ockey & Chukharev-Hudilainen, 2021; Timpe-Laughlin, 2020). For instance, Karatay (2022) designed an SDS-mediated Tourism English test in which learners acted as hotel receptionists responding to guest complaints; those who comprehended and replied appropriately achieved higher scores, demonstrating the role of interactive listening in authentic assessment. Although reliability remains a concern in high-stakes contexts, these integrated tasks are increasingly accepted for classroom and program-level assessment because they provide a more comprehensive evaluation of learners' listening competence (Brooks, 2009; Wagner, 2014)

2.2 Think-Aloud Protocols in Listening Assessment

Another important strand of research explores rater cognition through think-aloud protocols (TAPs). In these studies, raters verbalize their thought processes while evaluating learner performance, revealing how scoring criteria are applied and uncovering potential construct underrepresentation (Mackay & Gass, 2015). Sahan and Razi (2020) examined raters with different experience levels and found marked differences in how linguistic and textual features influenced their decisions. Similarly, Jin (2022) investigated the cognitive load of raters assessing integrated listening tasks, employing digital scaffolds to trace decision patterns. Collectively, TAP-based findings underscore the need for assessment practices that authentically represent listening processes while maintaining scoring consistency and fairness.

2.3 Theoretical Foundations of Listening Comprehension

Listening comprehension is commonly conceptualized as an interactive process integrating both bottom-up and top-down mechanisms. Bottom-up processing relies on phonemic, lexical, syntactic, and discourse clues to build meaning sequentially, whereas top-down processing activates prior knowledge, contextual information, and expectations to interpret meaning efficiently (Rost, 2002). Contemporary models further highlight the metacognitive dimension of listening: learners plan, monitor, and evaluate their comprehension strategies to manage cognitive demands. Goh (2020) argues that successful listening involves self-regulation, real-time adaptation, and reflective evaluation. This aligns with cognitive perspectives that frame listening as a dynamic, adaptive skill in which processing strategies constantly adjust to task and context (Shamsi & Bozorgian, 2024; El Madani et al., 2024). Affective factors such as motivation, anxiety,

and confidence also play crucial roles in determining learners' engagement and performance (Angkasa & Farida, 2025)

2.4 Micro-Skills of Listening and Cognitive Processing

Research consistently identifies a set of micro-skills essential for successful listening. These include: Phonemic discrimination, or the ability to distinguish subtle sound contrasts, often difficult for learners whose first-language phonology differs from English. Prosodic awareness, involving stress, intonation, and rhythm that convey pragmatic and semantic meaning. Lexical and syntactic processing, which contribute to fluent parsing and comprehension; automaticity in these areas supports real-time understanding (Hasonni & Al-Azzawi, 2024). Discourse-level interpretation, including the comprehension of cohesion, coherence, and inferential relationships within extended speech (Al-Akbari, 2025; Musayeva et al., 2025). Mastery of these micro-skills enables learners to integrate bottom-up decoding with top-down inferencing, achieving more effective comprehension of authentic speech (Rost, 2002; Lee & Ahn, 2025).

2.5 Challenges in EFL Listening Contexts

A substantial body of literature documents persistent listening challenges among EFL learners, particularly in non-Western and resource-limited environments. Difficulties often arise from rapid speech, diverse accents, idiomatic and implicit expressions, and unfamiliar cultural references (Sun, 2024; Zhang & Zhang, 2022). Learners' motivation, task-specific anxiety, and confidence further influence strategic engagement and success. In Yemen, these barriers are compounded by limited exposure to authentic English input, reliance on rote learning, and minimal emphasis on listening strategy instruction (Al-Sharafi & Al-Mekhlafi, 2023; Alrabai, 2023). Empirical studies show recurrent problems related to stress patterns, reduced forms, rapid delivery, and discourse linkage (Al-Sharafi & Al-Mekhlafi, 2023). Similarly, Alrabai (2023) found that gaps in pronunciation, intonation, and vocabulary instruction hinder comprehension. These consistent findings highlight the urgent need for instructional reform that strengthens strategy training and provides authentic, contextually relevant assessment tools.

2.6 Assessment and Validation of Listening in EFL

Assessment serves both diagnostic and instructional purposes in evaluating listening competence. Traditional tests emphasizing discrete skills frequently fail to represent the integrated, communicative nature of actual listening. Authentic, task-based formats, those involving extended discourse and contextual inferencing, are widely considered more effective in capturing the construct (Field, 2008). Local researchers emphasize developing contextually relevant assessment tools and enhancing teacher assessment literacy (Alrefaee, 2019; Al-Akbari, 2025). In addition, technology-assisted platforms such as online listening labs, podcasts, and mobile applications offer exposure to diverse accents, speech rates, and discourse contexts,

thereby improving both strategic awareness and overall proficiency (Alrabai, 2023; Musayeva et al., 2025; Xiao, 2025).

2.7 Emerging Trends and Future Directions

Current listening research reflects an increasing shift toward task-based, interactive, and technology-enhanced instruction. Activities such as note-taking, summarizing, and decision-making have been shown to foster comprehension, metacognitive strategy use, and learner motivation (Zhang & Zhang, 2022; Ramadhani et al., 2025). Advances in artificial intelligence and multimedia technologies have introduced simulations that increase engagement while reducing listening anxiety (Xiao, 2025). However, most investigations continue to center on beginner and intermediate learners in Asian or European contexts. Research on advanced learners in low-resource, non-Western environments, such as Yemen, remains limited, especially regarding integrated and process - product approaches to listening assessment.

2.8 Yemeni EFL Context: Challenges and Gaps

Recent empirical studies provide a clearer picture of Yemeni listeners' unique challenges: Al-Sharafi & Al-Mekhlafi (2023) found recurrent problems with stress, reduced forms, fast speech, and discourse integration. Alrefaee (2019) noted weak performance in inference and global comprehension tasks. Alrabai (2023) emphasized that insufficient focus on listening strategies limits metacognitive development. Al-Harithi & Al-Aamri (2024) observed over-reliance on textbook audio exercises and minimal authentic input. Standardized international tests designed for Western learners fail to capture Yemen's linguistic and cultural realities. Moreover, few studies apply process-product assessment frameworks for advanced learners. Prior research (e.g., Alrefaee et al., 2019) has concentrated on performance within existing standardized tests rather than designing locally validated tools. Accordingly, this study seeks to fill a major gap by developing and validating a culturally and linguistically appropriate listening comprehension test for advanced Yemeni EFL learners, integrating bottom-up and top-down processing skills and reflecting authentic language use. By grounding test development in both theory and local context, it contributes to cross-cultural validation of listening models and promotes evidence-based practices for low-resource EFL environments.

3. Research Methods and Procedures

3.1 Research Design

This study adopted a quantitative descriptive research design aimed at developing and validating a listening comprehension test for advanced Yemeni EFL learners. The study was grounded in contemporary theoretical frameworks of listening comprehension that conceptualize listening as an interactive process involving both bottom-up (process-oriented) and top-down (product-oriented) mechanisms.

The research procedures consisted of four main stages. First, a questionnaire was administered to identify the most important listening micro-skills perceived by advanced Yemeni EFL learners. Second, a listening comprehension test was constructed based on the results of the questionnaire and relevant theoretical literature. Third, the test was piloted with a group of students to examine its clarity and effectiveness. Finally, statistical analyses were conducted to evaluate the reliability and validity of the developed instrument and to examine learners' performance in both listening dimensions.

3.2 Population and Sample

The population of the study consisted of 100 advanced EFL learners enrolled in the Department of English at Sana'a University, Yemen. These participants were fourth-year undergraduate students during the second semester of the academic year. Having completed several years of English language instruction, these learners were considered to represent the advanced proficiency level within the local academic context.

All 100 students participated in completing the questionnaire. However, due to logistical and administrative constraints, 60 students were randomly selected to participate in the listening comprehension test. The participants ranged in age from 20 to 25 years, including 24 males and 36 females.

Prior to data collection, participants were informed about the purpose of the study and were assured that their participation was voluntary. Confidentiality and anonymity were maintained throughout the research process.

3.3 Research Instruments

Two main instruments were used for data collection:

A questionnaire designed to identify the most important listening micro-skills for advanced Yemeni EFL learners.

A listening comprehension test developed based on the results of the questionnaire.

3.3.1 Questionnaire

A structured questionnaire was developed to investigate learners' perceptions regarding the importance of various listening micro-skills required for successful listening comprehension.

Structure of the Questionnaire

The questionnaire consisted of three sections.

Section 1: Demographic Information

This section collected basic background information about the participants, including:

age, gender and academic level. No personal identifiers such as names were collected in order to maintain anonymity.

Section 2: Listening Micro-Skills

The second section included 23 listening micro-skills adapted from Richards' (2020) taxonomy of listening skills. These skills represent both bottom-up and top-down listening processes. Participants were asked to evaluate the importance of each skill using a three-point Likert scale:

1 = Not Important

2 = Important

3 = Very Important

Section 3: Open-Ended Question

The final section consisted of one open-ended question that allowed participants to suggest additional listening skills they considered important but were not included in the questionnaire. The purpose of the questionnaire was to serve as a needs-analysis tool that informed the development of the listening comprehension test.

Validity and Reliability of the Questionnaire

Content Validity

To ensure content validity, the questionnaire was reviewed by a panel of seven experts in language teaching, linguistics, and language assessment from the Faculty of Education, Faculty of Languages, and Faculty of Arts.

The experts evaluated the questionnaire in terms of:

- clarity of instructions
- relevance of the items
- suitability for advanced learners
- appropriateness of the number of items

Based on their feedback, several items were revised or removed. The initial version of the questionnaire included 51 listening sub-skills derived from Richards' taxonomy (2020). After the expert review, redundant or irrelevant items were eliminated, resulting in a final list of 23 listening micro-skills.

Pilot Testing

A pilot study was conducted with 15 students who were not part of the main study sample. The purpose of the pilot test was to examine the clarity of the questionnaire items and identify any potential problems. The pilot participants reported no significant difficulties in understanding the items.

Reliability

To determine the reliability of the questionnaire, Cronbach's alpha coefficient was calculated using responses from a group of 10 students. The reliability coefficient obtained was 0.939, indicating a high level of internal consistency.

3.3.2 Listening Comprehension Test

Based on the results of the questionnaire, the ten most important listening skills were selected for inclusion in the listening comprehension test. These skills represented both process-oriented (bottom-up) and product-oriented (top-down) listening abilities.

The final test consisted of 50 items distributed across several sections. The items were designed to assess different aspects of listening comprehension, including:

- phonemic discrimination
- recognition of stress patterns
- word order comprehension
- lexical inference from context
- discourse-level understanding
- Various item formats were used, including:
- multiple-choice questions
- short-answer questions
- comprehension tasks

The listening materials were selected from authentic academic and everyday contexts to ensure relevance and realism.

Validity and Reliability of the Listening Test

The listening test underwent several procedures to ensure its psychometric quality.

Content Validity

The test items were reviewed by a panel of experts in linguistics and EFL teaching to ensure that the items appropriately measured the targeted listening skills.

Pilot Study

A pilot test was conducted with 30 students to evaluate item clarity, difficulty levels, and discrimination indices.

Reliability

The internal consistency of the test was calculated using Cronbach's alpha, which yielded a reliability coefficient of 0.789, indicating acceptable reliability.

Construct Validity

An exploratory factor analysis was conducted to examine the underlying structure of the test. The results confirmed a two-factor structure, corresponding to process-oriented and product-oriented listening skills.

4. Data Analysis

The collected data were analyzed using SPSS version 25. Two types of statistical analyses were conducted:

Descriptive statistics, including means and standard deviations, were used to summarize participants' responses and performance levels.

Inferential statistics, specifically a paired-samples t-test, were used to examine whether there were statistically significant differences between learners' performance on process-oriented and product-oriented listening skills.

4.1 Research Question 1:

Table (1) below presents the percentages and frequencies. A survey questionnaire was administered to gather data on learners' perceptions of the most important listening skills for advanced EFL learners in Yemen. The survey included both closed-ended and open-ended questions to allow for both quantitative analysis of preferences and qualitative insights into their reasoning.

Table 1

Learners' Perceived Importance of Listening Micro-Skills

NO	Listening comprehension skills	Percentage (%)	Frequency (f)
1.	Ability to guess the meanings of words from the contexts in which they occur:	90	90
2.	Ability to recognize grammatical word classes (parts of speech).	88	88
3.	Ability to discriminate among the distinctive sounds of the target language.	74	74
4.	Ability to distinguish between literal and implied meanings.	67	67
5.	Ability to recognize typical word order patterns in the target language.	63	63
6.	Ability to detect meanings expressed in different grammatical forms/sentence types (i.e., that a particular meaning may be expressed in different ways).	63	63
7.	Ability to recognize the stress patterns of words.	59	59
8.	Ability to identify purpose and scope of lecture.	58	58
9.	Ability to identify topic of lecture and follow topic development.	56	56
10.	Ability to identify role of discourse markers in signalling structure of a lecture (e.g., conjunctions, adverbs, gambits, routines).	52	52
11.	Ability to recognize the functions of stress and intonation to signal the	51	51

	information structure of utterances.		
12.	Ability to recognize key lexical items related to subject/topic.	50	50
13.	Ability to identify relationships among units within discourse (e.g., major ideas, generalizations, hypotheses, supporting ideas, examples).	49	49
14.	Ability to recognize cohesive devices in spoken discourse.	45	45
15.	Ability to identify words in stressed and unstressed positions.	43	43
16.	Ability to distinguish word boundaries.	37	37
17.	Ability to infer relationships (e.g., cause, effect, conclusion).	38	38
18.	Ability to predict outcomes from events described.	33	33
19.	Ability to process speech containing pauses, errors, corrections.	34	34
20.	Ability to recognize elliptical forms of grammatical units and sentences.	30	30
21.	Ability to recognize reduced forms of words.	25	25
22.	Familiarity with different registers: written versus colloquial	24	24
23.	Ability to recognize irrelevant matter, jokes, digressions, meanderings.	19	19

Table (1) above presents the results of the questionnaire, highlighting both strengths and areas for improvement in learners' abilities. From an academic perspective, the data can be analyzed through the lens of cognitive, linguistic, and metacognitive frameworks, which are widely recognized in listening comprehension research. The highest-rated skills, such as guessing word meanings from context (90%) and recognizing grammatical word classes (88%), reflect strong foundational abilities in lexical and syntactic processing. These skills are essential for initial comprehension and are often the first to develop in second language learners. Their prominence in the data suggests that learners can effectively decode basic linguistic input, which aligns with bottom-up processing models of listening comprehension. Mid-range skills, including distinguishing literal and implied meanings (67%) and identifying lecture purpose and topic (58%, 56%), indicate moderate success in integrating information and understanding speaker intent. These abilities require higher-level cognitive processing and the application of prior knowledge, which are hallmarks of academic listening. The moderate percentages suggest that while learners can follow main ideas, inferencing and critical listening remain challenging, particularly when processing abstract or nuanced information. The lowest scores, such as recognizing reduced and elliptical forms (25%, 30%) and identifying irrelevant digressions (19%)—point to difficulties with the phonological and pragmatic aspects of spoken language. These areas demand sensitivity to prosody, fluency, and discourse markers, which are often underdeveloped in academic settings. The data thus reveal a common gap between learners' ability to process structured, formal speech

and their readiness for authentic, spontaneous discourse. Overall, the distribution of percentages underscores the need for targeted instruction that moves beyond basic decoding to foster metacognitive strategies, critical listening, and exposure to naturalistic speech patterns.

4.2 Research Question 2:

To address Research Question (2), "Are there any statistically significant differences between Yemeni EFL students' performance in the process and product-oriented skill? ", descriptive and inferential statistics were computed to evaluate advanced Yemeni EFL learners' performance on the listening comprehension test, specifically examining process-oriented and product-oriented skills**.**

A paired-samples t-test was conducted to compare performance between process-oriented and product-oriented listening skills among 60 participants, table (2).

Table 2

Paired Sample T-Test between Process and Product

Listening type	N	Mean	SD	T	Mean Difference	df	Sig. (2-tailed)	95% CI Lower	95% CI Upper
Process	60	74.31	12.47	1.97	4.33	59	.053	24.33	16.96
Product	60	70.65	14.27						

Note: SD = standard deviation; CI = confidence interval

The results, presented in Table (2), indicated that the mean score for process-oriented listening skills (M = 74.31) was higher than that for product-oriented listening skills (M = 70.65). The mean difference between the two skill types was 4.33, with a standard deviation of 12.47. Results showed that process-oriented scores (M = 74.31, SD = 12.47) were slightly higher than product-oriented scores (M = 70.65, SD = 14.27). However, the difference did not reach statistical significance, t (59) = 1.97, p = .053.

Although the obtained p-value approached the conventional alpha level of .05, it does not provide sufficient evidence to conclude a statistically significant difference between the two listening dimensions. These findings suggest that advanced learners employ bottom-up and top-down processes in a relatively integrated and balanced manner.

4.3 Discussion and Interpretation of Findings

The findings of this study provide valuable insights into the listening comprehension abilities of advanced Yemeni EFL learners and the effectiveness of the newly developed listening assessment tool. The high ratings for skills such as guessing word meanings from context and recognizing grammatical word classes

indicate that learners possess relatively strong lexical and syntactic processing abilities. These findings align with bottom-up models of listening comprehension, which emphasize the importance of accurate phonological decoding, lexical access, and syntactic parsing as foundational components of successful listening (Field, 2008; Rost, 2002). In advanced EFL contexts, prolonged exposure to formal language instruction often strengthens these micro-skills, enabling learners to efficiently process linguistic input at the word and sentence levels. Thus, the present findings suggest that the participants have developed stable lower-level processing mechanisms that support comprehension accuracy.

However, the moderate and low ratings for skills involving prosody and discourse-level comprehension reveal persistent challenges in higher-level listening processes. Difficulties in recognizing intonation patterns, stress shifts, implied meanings, and discourse organization indicate limitations in top-down processing and pragmatic interpretation. These findings are consistent with research conducted in Yemeni and other EFL contexts, which has shown that learners frequently struggle with authentic speech features such as reduced forms, connected speech, and natural speech rate (Al-Sharafi & Al-Mekhlafi, 2023). Similarly, Goh (2020) argues that advanced learners often demonstrate uneven development between lower-level decoding skills and higher-level inferential comprehension, particularly in environments with limited exposure to naturalistic spoken input. The present study therefore confirms that while learners may achieve competence in linguistic recognition, discourse-level processing remains a demanding area requiring targeted pedagogical intervention.

The comparison between process-oriented and product-oriented listening performance further reinforces the interactive nature of listening comprehension. Although process-oriented listening scores ($M = 74.31$, $SD = 12.47$) were numerically higher than product-oriented scores ($M = 70.65$, $SD = 14.27$), the difference was not statistically significant, $t(59) = 1.97$, $p = .053$. This absence of statistical significance suggests that advanced learners engage bottom-up and top-down processes in a relatively balanced manner. This finding strongly supports interactive models of listening, which conceptualize comprehension as a dynamic interplay between linguistic decoding and schematic knowledge rather than a strictly hierarchical process (Rost, 2002; Field, 2008). Rather than privileging one processing route over another, the results indicate that advanced learners rely on an integrated cognitive system that simultaneously activates lexical, syntactic, inferential, and contextual resources during listening tasks.

Pedagogically, these findings underscore the importance of integrating both process-oriented and product-oriented approaches in listening instruction and assessment. While lower-level decoding skills appear relatively well developed among the participants, instruction should place greater emphasis on enhancing prosodic awareness, inferencing ability, and discourse interpretation. Previous research highlights the

effectiveness of explicit strategy instruction, metacognitive training, and exposure to authentic audio materials in strengthening higher-level listening skills (Goh, 2020; Zhang & Zhang, 2022). In particular, incorporating authentic speech samples that reflect varied accents, speech rates, and pragmatic contexts may help bridge the gap between classroom listening practice and real-world communication demands.

The strong reliability and validity indices of the developed test further demonstrate its suitability as a context-specific assessment instrument. Unlike many standardized listening tests that emphasize discrete-point measurement, the present instrument captures a broader range of listening micro-skills, including both linguistic and discourse-level competencies. This aligns with contemporary assessment frameworks that advocate for integrated skill measurement and contextual authenticity in language testing (Field, 2008). By reflecting the linguistic realities and learning conditions of Yemeni EFL learners, the test addresses the limitations of culturally distant standardized assessments that may not accurately represent learners' communicative needs or cognitive processing patterns.

Moreover, the study contributes theoretically by providing empirical evidence supporting interactive models of listening within a low-resource EFL context. Much of the literature on listening processes has been developed in ESL or well-resourced educational environments. By examining advanced learners in Yemen, this study expands the geographical and contextual scope of listening research and highlights the influence of instructional environment on skill development patterns. The findings suggest that even in contexts with limited exposure to authentic spoken English, learners can develop relatively balanced processing abilities when instruction systematically targets both linguistic and strategic components.

In summary, the results of this study contribute to both theoretical understanding and pedagogical practice. The findings validate the interactive conceptualization of listening comprehension, confirm the uneven development of micro-skills among advanced learners, and demonstrate the importance of culturally and linguistically appropriate assessment tools. For educators and policymakers, the study provides data-driven guidance for curriculum development, instructional planning, and assessment reform. For researchers, it offers a replicable model for developing and validating context-sensitive listening tests in similar EFL environments, thereby strengthening the alignment between theory, assessment, and classroom practice.

5. Conclusion

This study has developed a comprehensive examination of the listening comprehension abilities of advanced Yemeni EFL learners. The significant findings reiterate that listening is a multifaceted, interactive skill necessitating the integration of both bottom-up and top-down processing, supported by metacognitive awareness and authentic exposure. The developed test demonstrated acceptable reliability and sound construct validity, capturing a broad spectrum of listening micro-skills essential for advanced learners.

Performance data reveal strengths in phonemic discrimination and weaknesses in prosodic and discourse-level comprehension, consistent with linguistic and instructional realities in Yemen. These insights endorse the need for targeted pedagogical interventions addressing specific skill areas, including phonology, stress, intonation, and inferencing abilities. Importantly, the lack of significant performance differences between the process and product components of the test underscores the holistic nature of listening, emphasizing that instruction and assessment should reflect this integration. The strong correlation between authentic listening habits and proficiency highlights the critical role of curriculum designers in incorporating diverse materials and real-world listening practices. Teachers are encouraged to embed strategic listening training within their instruction, fostering metacognitive skills such as planning and self-regulation. The study also points to the necessity of utilizing technology-enhanced listening resources to mitigate exposure limitations pervasive in contexts like Yemen. Despite the valuable contributions, limitations including sample constraints and reliance on self-reports indicate avenues for further research. Future endeavors should adopt longitudinal and mixed-methods designs to capture listening development trajectories and explore affective factors in depth. Research across broader sociocultural environments within the Arab world could enrich contextualized strategies preventing generalization biases. In sum, this study lays foundational groundwork for enhanced listening instruction and assessment in Yemeni and comparable EFL environments. By refining understanding of learner challenges and developing robust evaluation tools, it promotes methodological rigor and pragmatic responsiveness in L2 listening pedagogy, affirming listening comprehension as both a skill and a continual learning process.

5.1 Pedagogical Implications

The findings entail several concrete recommendations. First, teaching phoneme contrasts and prosodic features explicitly can address persistent bottom-up weaknesses. Incorporating focused pronunciation and rhythm activities that emphasize stress and intonation patterns will enhance learners' interpretative accuracy. Second, exposure to and engagement with varied authentic materials—using multimedia platforms, podcasts, and diverse accents—should be systematically integrated into curricula. These settings serve as ideal contexts for practicing both process and product skills within real communicative environments, thus cultivating natural, adaptive listening abilities. Third, fostering learners' metacognitive awareness through strategy instruction can equip them with skills for planning, monitoring, and evaluating listening efforts. Engaging learners in reflective practices encourages autonomy and enhances comprehension under complex listening conditions. Finally, testing instruments should be regularly updated and validated to reflect continuing research advancements and evolving learner needs, ensuring alignment between assessment and actual listening demands.

5.2 Suggestions for Further Studies

Progress in understanding and assessing listening comprehension requires longitudinal research that maps the development of listening micro-skills over time. While the present study provides a cross-sectional perspective on advanced Yemeni EFL learners, future research should examine how bottom-up and top-down processing abilities evolve across different proficiency levels and instructional stages. Such investigations would offer deeper insight into developmental patterns in lexical decoding, prosodic awareness, inferencing, and discourse integration.

Experimental studies testing the effectiveness of specific instructional approaches and technological interventions are also needed to establish evidence-based practices. Given the challenges identified in prosody and discourse-level comprehension, future research should explore the impact of explicit strategy instruction, authentic listening materials, and technology-enhanced learning environments on learners' performance outcomes.

Furthermore, expanding research to include sociocultural and affective dimensions within Arabic-speaking EFL contexts would enrich understanding of listening comprehension. Variables such as motivation, listening anxiety, cultural familiarity with content, and exposure to English outside the classroom may significantly influence learners' performance. Addressing these dimensions would contribute to the development of more context-sensitive pedagogical and assessment frameworks.

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