



DEVELOPING A SPOC-BASED ACADEMIC LISTENING MODEL: A PRELIMINARY NEEDS ANALYSIS

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ABSTRACT

Academic listening is an essential but challenging skill for EFL learners in higher education. However, limited research has examined students' needs as a basis for developing online academic listening instruction. This study investigated the needs of Indonesian EFL undergraduates to inform the development of a Small Private Online Course (SPOC)-based Academic Listening model. A qualitative needs-analysis design was conducted as the preliminary phase of a Design and Development Research project. Data were collected through open-ended questionnaires from 36 students enrolled in an Academic Listening course at Universitas Sultan Ageng Tirtayasa, Indonesia, and analyzed thematically using ATLAS.ti 9. Five interrelated themes emerged: linguistic challenges, cognitive challenges, emergent consecutive note-taking practices, self-regulated learning challenges, and environmental and technical challenges. Students experienced difficulties with unfamiliar vocabulary, rapid speech, information overload, concentration, and technological constraints. They also employed keywords, abbreviations, symbols, and idea mapping to support comprehension and reduce information loss. These findings suggest that consecutive note-taking serves as a learner-generated cognitive support strategy and provides an empirical basis for designing a SPOC-based Academic Listening model integrating linguistic scaffolding, cognitive support, and self-regulated learning.

Keywords: *academic listening; spoc; needs analysis; consecutive note-taking; efl learners*

INTRODUCTION

Listening is widely regarded as the most frequently used yet least explicitly taught language skill in second-language classrooms, and this imbalance becomes more consequential at the tertiary level, where academic listening underlies students' ability to follow lectures, seminars, and authentic spoken discourse (Vandergrift & Goh, 2012). Unlike reading or writing, listening is transient and real-time: learners cannot pause or reread spoken input without external support, which places a distinct cognitive load on comprehension as listeners simultaneously decode sound, retrieve vocabulary, parse syntax, and construct meaning (Vandergrift, 2006; Graham, 2006). For English as a Foreign Language (EFL) learners, this load is compounded by unfamiliar accents, rapid speech rate, and dense academic vocabulary, all of which have long been documented as primary sources of difficulty in academic lecture comprehension (Flowerdew & Miller, 1992; Rahimirad & Moini, 2015).

Recent research continues to confirm that L2 listening remains an under-researched and cognitively demanding skill, with metacognitive load and working-memory capacity emerging as key predictors of comprehension success (Ghanipour et al., 2026). At the same time, higher education has increasingly turned to blended and online delivery formats to extend access and flexibility to language instruction. Among these formats, the Small Private Online Course (SPOC)-a model first coined by Fox (2013) to describe a localized, curated adaptation of the Massive Open Online Course (MOOC)-has gained particular traction because it retains instructor guidance and a bounded, identifiable cohort while offering the flexibility of digital delivery. Unlike MOOCs, which are frequently associated with high attrition, SPOCs are designed for a defined group of enrolled students, enabling more personalized feedback and closer tracking of learning progress. Emerging evidence from EFL contexts suggests that SPOC-based blended instruction can meaningfully improve receptive skills and learner motivation when the course is carefully aligned with learners' actual needs and constraints.

However, the effectiveness of any SPOC-based design depends heavily on how well it is grounded in an empirical understanding of the target learners. Without a systematic needs analysis, online listening materials risk becoming a mere digital transposition of face-to-face instruction-rigid, decontextualized, and unable to mitigate the cognitive difficulties inherent to listening comprehension. To date, relatively few studies have used learners' own accounts of their listening difficulties, note-taking behavior, and online-learning preferences as the empirical starting point for designing a SPOC-based academic listening course, particularly within the Indonesian EFL context.

This study addresses that gap by conducting a qualitative needs analysis as the preliminary phase of a Design and Development Research (DDR) project aimed at producing a SPOC-based Academic Listening instructional model. Specifically, the study seeks to answer the following research questions: 1) What linguistic and cognitive challenges do Indonesian EFL undergraduates experience in academic listening?; 2) What note-taking and self-regulated learning strategies do students naturally employ to manage these challenges?; 3) What features do students perceive as necessary to support their learning in a SPOC-based academic listening environment?

By answering these questions, this study contributes empirical, learner-derived evidence to inform the instructional and technological design of SPOC-based listening courses, and offers practical recommendations for curriculum developers seeking to bridge the gap between learners' authentic listening habits and the demands of academic discourse.

LITERATURE REVIEW

Academic Listening as a Cognitively Demanding Skill

Academic listening differs from everyday conversational listening in that it requires learners to process extended, information-dense, and often monologic input while simultaneously identifying main ideas, tracking argument structure, and retaining detail for later use (Flowerdew & Miller, 1992). Vandergrift and Goh (2012) frame listening comprehension as an active, constructive process involving perceptual, parsing, and utilization phases, each of which draws on working memory. Because spoken input cannot be paused or reviewed in real time, learners face what has been described as a transient processing demand that is far less forgiving than the demands of reading

(Vandergrift, 2006; Graham, 2006). When this processing demand exceeds a learner's available cognitive capacity, comprehension breaks down into what is often labeled passive listening, in which learners register sound without constructing meaning.

Contributing factors to this cognitive burden include unfamiliarity with native-speaker accents, rapid and reduced speech forms, and specialized academic vocabulary (Rahimirad & Moini, 2015). More recent work using metacognitive-intervention designs confirms that cognitive load remains a central obstacle even for upper-intermediate learners, and that explicit strategy instruction-planning, monitoring, and evaluating one's own listening-can meaningfully reduce this load (Ghanipour et al., 2026). These findings collectively suggest that any instructional design for academic listening must actively manage cognitive load rather than simply deliver authentic audio content.

Note-Taking as a Cognitive Support Strategy

Note-taking has long been theorized as a compensatory strategy that allows learners to offload information from limited working memory into an external, reviewable record (Mayer, 2009). Mayer's selection-organization-integration (SOI) model of multimedia learning proposes that meaningful learning occurs when learners select relevant input, organize it into a coherent structure, and integrate it with prior knowledge-a process that note-taking can externally support during listening. Empirical studies on L2 note-taking report mixed but generally positive effects: uninstructed note-taking sometimes yields limited benefit, whereas explicit instruction in note-taking strategies, such as the Cornell method, has been shown to significantly improve listening comprehension test performance compared with untrained note-taking or no note-taking at all (Hayati & Jalilifar, 2009). This body of research implies that while learners often develop note-taking habits spontaneously, structured scaffolding can substantially increase their effectiveness as a cognitive support tool.

SPOC as a Blended Learning Model for Language Instruction

The Small Private Online Course was introduced as an alternative to the Massive Open Online Course, designed for a bounded, enrolled cohort of on-campus students rather than an open, anonymous global audience (Fox, 2013). This bounded design allows instructors to combine the flexibility of digital delivery-asynchronous access, replay, and self-paced navigation-with the accountability and feedback typically associated with face-to-face instruction. For language education specifically, SPOC-based blended learning has been associated with gains in receptive skills and learner motivation, provided the platform is aligned with learners' cognitive and affective needs. At the same time, research also cautions that poorly designed SPOCs can produce negative learning behaviors when task-technology fit and course quality are low, underscoring that the technological format alone does not guarantee learning gains; instructional design grounded in learners' actual needs is indispensable.

Needs Analysis as the Empirical Foundation for Instructional Design

Within instructional design research, needs analysis functions as the diagnostic phase that precedes the design and development of a learning intervention, ensuring that subsequent design decisions are grounded in the target population's actual characteristics, difficulties, and preferences rather than in the designer's assumptions (Richey & Klein, 2007). As the preliminary phase of Design and Development Research (DDR), a qualitative needs analysis is particularly suited to capturing the nuanced, experience-

based data-such as learners' spontaneous coping strategies and emotional responses to listening tasks-that quantitative instruments alone may fail to surface. This study adopts that premise, treating students' own accounts of their listening difficulties and strategies as the primary evidentiary basis for the subsequent design of a SPOC-based Academic Listening model.

METHOD

Research Design

This study employed a qualitative needs-analysis design, positioned as the preliminary (analysis) phase of a Design and Development Research (DDR) project intended to produce a SPOC-based Academic Listening instructional model. A qualitative approach was selected because the study sought an in-depth, experience-near understanding of students' listening difficulties, coping strategies, and expectations of an online learning environment, rather than the measurement of predefined variables.

Participants and Context

Participants were 36 students enrolled in an Academic Listening course at the English Department, Universitas Sultan Ageng Tirtayasa, Indonesia. All participants had prior exposure to listening instruction through the department's Language Laboratory and had, to varying degrees, engaged in independent listening practice using digital platforms such as YouTube, podcasts, Spotify, and Google Meet-a background that provided a meaningful basis for eliciting their perceptions of both conventional and online academic listening experiences.

Data Collection

Data were collected through an open-ended questionnaire designed to elicit students' prior listening-learning experiences, the linguistic and cognitive difficulties they encountered during academic listening, the note-taking and coping strategies they used, and their perceptions of the advantages and challenges of online listening instruction. The open-ended format was chosen to allow students to describe their experiences in their own words, generating rich qualitative data suitable for thematic analysis.

Data Analysis

Responses were analyzed using thematic analysis following the six-phase framework of Braun and Clarke (2006)-familiarization, initial coding, searching for themes, reviewing themes, defining and naming themes, and producing the report-supported by ATLAS.ti 9 for systematic coding and theme development. This process generated five interrelated themes: (1) linguistic challenges, (2) cognitive challenges, (3) emergent consecutive note-taking practices, (4) self-regulated learning challenges, and (5) environmental and technical challenges. These themes form the structure of the Results section below and directly inform the feature requirements synthesized in synthesized section.

RESULTS

Respondent Profile and Prior Learning Experience

Respondents' prior listening experiences ranged from structured Language Laboratory instruction to independent exploration of digital listening platforms. Table 1 summarizes representative profiles drawn from the questionnaire responses.

Table 1. Representative respondent profiles and prior listening-learning experience

Respondent	Prior Learning Experience	Online Platforms Used
Silpi	Language Laboratory; independent listening (music/cartoons)	YouTube, Podcast, Spotify
Shofiyah	Language Laboratory; independent learning	Google Meet, Podcast, News Anchor, YouTube
Nov Fitri	Language Laboratory; academic video exposure	Google Classroom, Podcast, Zoom, YouTube, TED-Talk
Sandra	Language Laboratory; independent learning	Google Meet, Podcast, News Anchor, YouTube
Ismail	Semester 4 coursework	Podcast, YouTube
Riana	General coursework experience	YouTube, TED-Talk, Podcast

The intensity with which students such as Silpi independently used entertainment-oriented platforms (Spotify, podcasts) suggests an existing, if unstructured, capacity for self-regulated learning that has not been fully accommodated within the conventional Language Laboratory system. Several students reported intuitively authentic listening practices, such as watching cartoons without subtitles to sharpen listening acuity. Notably, however, students who were highly proficient in navigating entertainment platforms still reported feeling unprepared when confronted with formal academic material—a paradox suggesting that a SPOC-based design must transform academic content into a format offering the same flexibility of access as students' everyday digital habits, without compromising academic depth.

Linguistic and Cognitive Challenges in Academic Listening

Consistent with prior literature, students identified academic listening as a demanding information-processing task rather than a purely auditory one. Two broad categories of difficulty emerged from the data.

Linguistic challenges. Students reported difficulty distinguishing between unfamiliar native-speaker accents (particularly American versus British varieties), keeping pace with native speech rate, and decoding specialized academic vocabulary and jargon that impeded instant comprehension.

Cognitive challenges. Shofiyah noted that compound-complex sentence structures made information feel dense and difficult to reduce into manageable keywords. Several students described experiencing memory "blanks" while attempting to retain earlier information while simultaneously processing new input—a pattern consistent with working-memory overload. Ismail specifically attributed this loss of informational continuity to the absence of clear signposting language from speakers. Regarding mental fatigue, Shofiyah reported that her optimal concentration span lasted only 10-15 minutes, beyond which sustained attention deteriorated markedly.

Taken together, these compounding factors create conditions conducive to passive listening, in which students hear sound without constructing meaning. As an emergency coping strategy against this breakdown, students such as Silpi resorted to screen-recording or audio-recording lecture content on their phones-clear evidence that instructional design must provide built-in tools to slow down or replay the flow of spoken information, rather than leaving learners to develop ad hoc workarounds.

Emergent Note-Taking Practices

Note-taking emerged as a central, learner-generated cognitive support strategy used to compensate for the limitations of short-term memory. Most students reported using a form of consecutive note-taking, recording key points incrementally as the listening input unfolded. Three sub-patterns were identified: a) Multimodal visual techniques: vertical bullet points, indentation to represent idea hierarchy, and symbols (stars, arrows); Sandra specifically added highlighting and simple drawings to strengthen information retention. b) Paraphrasing and transformation: students such as Shofiyah engaged in a process of "translating" complex lecturer explanations into their own simplified wording. c) Draft-stage note organization: notes typically began as rough, unstructured drafts that were only reorganized into a coherent form after the listening session ended.

Although these strategies were reported as helpful, students also described a persistent multitasking barrier-the difficulty of dividing attention accurately between listening and writing at the same time. The prevalence of rough, unorganized drafts indicates a clear need for a structured post-listening phase within the SPOC design, giving students dedicated time and space to reconstruct their notes into coherent understanding.

Online Learning Dynamics: Flexibility versus Distraction

The SPOC model offers students greater autonomy over their learning process, but this autonomy also introduces distraction-related risks. Table 2 summarizes the perceived advantages and challenges of online listening instruction as reported by respondents.

Table 2. Perceived advantages and challenges of online academic listening instruction

Advantages of Online Learning	Challenges of Online Learning
Full control over learning pace	Technical issues (internet connectivity/devices)
A calm, personalized learning environment (e.g., studying with headphones in one's own room)	Time management difficulties and social-media temptation (as noted by Shofiyah)
Reduced social pressure compared to the Language Laboratory setting	Lack of direct interaction and immediate feedback

Learner-controlled features such as replay and rewind emerged as the primary compensation for the loss of the instructor's physical presence. Sandra emphasized that studying independently, away from the sometimes noisy pressure of the Language Laboratory, actually increased her focus-suggesting that for certain learner profiles, a

controlled, low-pressure environment is a facilitating rather than isolating condition. These findings imply that a SPOC should be positioned not merely as a content repository, but as a learning ecosystem that affords psychological safety alongside full navigational control.

Synthesis of Required Features for the SPOC-Based Model

To minimize extraneous cognitive load, students' responses converge on four categories of features that a SPOC-based Academic Listening model should integrate: 1) Content chunking: short video segments of 5-7 minutes to prevent mental fatigue and sustain focus, aligned with the concentration span most respondents reported. 2) Precise cognitive navigation: interactive transcripts, adjustable playback speed, and timestamp/bookmark functions; Ismail specifically suggested that feedback should indicate the exact minute at which relevant information was mentioned, enabling instant self-verification. 3) Descriptive feedback: comprehensive explanations of error location and rationale, rather than a numerical score alone, to support reflective learning. 4) Instructional scaffolding: structured note-taking templates (e.g., Cornell Notes or mind-mapping formats) to help students distinguish main ideas from supporting details.

Collectively, these features are expected to create a sense of psychological security: when students know that an interactive transcript and precise navigational support are available, the perceived threat posed by native-speaker speech rate can be mitigated, allowing attentional resources to be redirected fully toward content comprehension.

DISCUSSION

The findings of this needs analysis both confirm and extend existing theoretical accounts of L2 listening difficulty. Consistent with Vandergrift and Goh (2012) and Vandergrift (2006), students' reports of memory "blanks" and rapid mental fatigue reflect the transient, real-time processing burden that characterizes listening as distinct from reading or writing. The specific linguistic obstacles reported-unfamiliar accents, rapid speech, and dense academic vocabulary-directly echo the difficulties long documented in academic lecture-listening research (Flowerdew & Miller, 1992; Rahimirad & Moini, 2015), while the reported working-memory overload aligns with recent evidence that cognitive load remains a central barrier to L2 listening comprehension even among learners with substantial prior exposure (Ghanipour et al., 2026).

The prominence of consecutive note-taking as a spontaneous coping strategy corroborates the theoretical claim that note-taking functions as an externalized memory aid consistent with Mayer's (2009) selection-organization-integration model, and supports prior findings that structured note-taking instruction, such as the Cornell method, can significantly enhance listening comprehension outcomes compared with unstructured or absent note-taking (Hayati & Jalilifar, 2009). Because students in this study largely developed note-taking strategies informally and without explicit instruction, the results suggest considerable room for a SPOC-embedded scaffolding component that formalizes and strengthens these emergent practices rather than introducing an entirely new skill.

From a design perspective, the tension students described between the flexibility and the distraction risks of online learning mirrors broader findings that SPOC effectiveness depends on task-technology fit and course quality rather than the online format itself; poorly aligned SPOCs risk producing disengagement, whereas well-designed ones-particularly those retaining instructor guidance for a bounded cohort, as

originally conceived by Fox (2013)-can enhance both comprehension outcomes and learner motivation. The specific feature requests emerging from this study (chunked video, interactive transcripts, timestamped feedback, and structured note-taking templates) can be read as a learner-generated blueprint for managing extraneous cognitive load within a digital environment, directly operationalizing cognitive-load-reduction principles discussed in the listening-comprehension literature.

Pedagogically, these findings suggest that curriculum developers should not treat online delivery as a neutral container for existing materials. Instead, four concrete design implications follow from the data: (1) pre-listening strategy training in note-taking and symbol use should precede substantive content to build students' technical readiness; (2) authentic materials (podcasts, TED Talks) should be curated into short, segmented units to preserve cognitive stamina rather than presented as unbroken monologues; (3) every audio segment should be paired with supporting visuals (slides or graphics) to address the mental fatigue students associated with staring at a blank screen while listening; and (4) automated, timestamp-linked feedback and collaborative discussion spaces should be embedded to mitigate the isolation risk of independent online study while still enabling reflective review.

CONCLUSION

This study investigated the academic listening needs of Indonesian EFL undergraduates as the empirical foundation for designing a SPOC-based Academic Listening instructional model. Thematic analysis of open-ended questionnaire data from 36 students yielded five interrelated themes-linguistic challenges, cognitive challenges, emergent consecutive note-taking practices, self-regulated learning challenges, and environmental and technical challenges-that together depict academic listening as a cognitively demanding, multi-layered activity for which students have already begun to develop, largely unaided, their own coping strategies.

The results carry clear implications for instructional design: an effective SPOC-based Academic Listening model should combine linguistic scaffolding (vocabulary and accent preparation), cognitive support tools (chunked content, interactive transcripts, adjustable playback speed, and timestamped feedback), and features that nurture self-regulated learning (structured note-taking templates and collaborative discussion spaces). Implementing these recommendations is expected to transform Academic Listening from an experience students describe as overwhelming into one that is manageable and positively challenging, positioning SPOC technology as a bridge between learner autonomy and the attainment of academic listening competence.

This study is limited by its reliance on self-reported, questionnaire-based data from a single institution and by its qualitative, non-generalizable design, which was intentionally chosen to serve the diagnostic aims of the preliminary DDR phase. Future research should proceed to the design and development phase of the DDR cycle: constructing a SPOC-based Academic Listening prototype informed by the present findings, followed by expert validation and a controlled implementation study to evaluate its effectiveness on students' listening comprehension, note-taking competence, and self-regulated learning outcomes.

BIBLIOGRAPHY

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Flowerdew, J., & Miller, L. (1992). Student perceptions, problems and strategies in second language lecture comprehension. *RELC Journal*, 23(2), 60-80.
- Fox, A. (2013). From MOOCs to SPOCs. *Communications of the ACM*, 56(12), 38-40.
- Ghanipour, [initial to be completed]. (2026). EFL learners' challenges in metacognitive listening intervention. *International Journal of Applied Linguistics*. Advance online publication.
- Graham, S. (2006). Listening comprehension: The learners' perspective. *System*, 34(2), 165-182.
- Hayati, A., & Jalilifar, A. (2009). The impact of note-taking strategies on listening comprehension of EFL learners. *English Language Teaching*, 2(1), 101-111.
- Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press.
- Rahimirad, M., & Moini, M. R. (2015). The challenges of listening to academic lectures for EAP learners and the impact of metacognitive strategy training. *Procedia - Social and Behavioral Sciences*, 192, 371-379.
- Richey, R. C., & Klein, J. D. (2007). *Design and development research: Methods, strategies, and issues*. Routledge.
- Vandergrift, L. (2006). Second language listening: Listening ability or language proficiency? *The Modern Language Journal*, 90(1), 6-18.
- Vandergrift, L., & Goh, C. C. M. (2012). *Teaching and learning second language listening: Metacognition in action*. Routledge.