



The Impact of Using Type-to-Speech on Substack's 'Play Audio' in Independent Listening for EFL Students

Elisa Dyah Wardani¹, Widya Caterine Perdhani²

^{1,2} Pendidikan Bahasa Inggris, Universitas Brawijaya, Malang

Article Info	Abstract
Received: 2026 - 06- 01	<i>This qualitative case study examines how Substack's built-in Play Audio feature, a Text-to-Speech (TTS) tool, supports independent listening development among EFL students. Although TTS technology is increasingly available on everyday digital platforms, its potential to support L2 listening development in non-educational contexts remains largely unexplored. Four purposively selected Grade X and XI students in an Indonesian secondary school participated in this study. Data on this study were collected through semi-structured interviews, systematic participant observation, and reflexive field notes, and were investigated using a qualitative descriptive approach that was supported by thematic analysis. The findings revealed four themes: improved listening comprehension, vocabulary acquisition through bimodal input, real-world contextual knowledge, and motivation for independent listening. Repeated engagement with Play Audio improved students' ability to process spoken English, supported incidental vocabulary learning, exposed learners to authentic language beyond textbook norms, and fostered intrinsic motivation for autonomous listening practice. These findings contribute towards the growing studies on informal digital learning of languages and offer practical implications for EFL teachers in Indonesian secondary schools seeking accessible and authentic alternatives to conventional listening materials.</i>
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Corresponding Author: Elisa Dyah Wardani elisa28dyah@gmail.com Pendidikan Bahasa Inggris, Universitas Brawijaya, Malang	

1. Introduction

Listening is a foundational skill for effective communication, yet it remains one of the most challenging areas for English as a Foreign Language (EFL) learners. Processing spoken language requires the simultaneous integration of phonological,

lexical, and contextual knowledge under real-time conditions (Vandergrift & Goh, 2021). Many EFL students in Indonesia struggle with native-speaker accents, limited exposure to authentic English, and the passive nature of conventional listening instruction, which typically involves scripted recordings and discrete-answer exercises that do not replicate the complexity of real-world communication (Mahmud et al., 2024; Hasan, 2024; Kristantiningsih & Nurlaily, 2023). These limitations call for more accessible and authentic listening alternatives that extend beyond the classroom.

Text-to-Speech (TTS) technology has emerged as a promising solution. By synthesising written text into natural-sounding speech, TTS enables learners to engage with authentic written content as a listening resource, providing simultaneous bimodal input (written text paired with synthesised audio) that supports both comprehension and vocabulary learning (Malone, 2018; Sydorenko, 2010). Critically, TTS is now embedded in everyday digital platforms, meaning learners can access authentic, topically diverse English content at no cost and with minimal barriers. Substack, a rapidly growing newsletter and long-form content platform that has attracted millions of writers since its launch in 2017 (Meneses & Gomez-Escalonilla, 2025), exemplifies this affordance. Its Play Audio feature converts any article into synthesised speech on demand, offering content spanning technology, culture, education, and personal narrative, written for authentic communicative purposes rather than pedagogical packaging. This linguistic diversity, spanning conversational essays to analytically dense commentary, makes Substack a fertile environment for authentic listening input (Treve, 2023; Shukurdinovna, 2024; Kochkorova, 2025).

Research consistently demonstrates that TTS supports multiple dimensions of L2 development. In terms of comprehension, TTS has been shown to improve listening accuracy and reduce cognitive load, particularly when text and audio are available simultaneously (Tai & Chen, 2022; Avrianti et al., 2025; Matsuda, 2017). Regarding vocabulary, bimodal input helps learners connect written and spoken word forms, supporting both recognition and retention (Malone, 2018; Sydorenko, 2010; Chen, 2021). With respect to motivation and autonomy, the self-paced nature of TTS-based learning promotes learner agency and encourages self-directed practice (Al-Jarf, 2022; Huang et al., 2015; Karakas, 2017). These three dimensions are interconnected: when learners understand spoken input more effectively, they acquire vocabulary more readily, which in turn reinforces their confidence and desire to listen independently. This progression can be understood through a single integrated framework: TTS enables bimodal input, which strengthens listening comprehension and vocabulary recognition, which builds the competence and intrinsic motivation necessary for autonomous listening development.

Despite this growing evidence, significant gaps remain in the literature. Most prior studies have used purpose-built TTS applications in controlled classroom settings and have focused narrowly on pronunciation support or reading

assistance (Wood et al., 2018; Fitria, 2025). Very few have examined TTS as a resource for independent, out-of-class listening, and no existing study has investigated TTS embedded within a general-audience authentic content platform such as Substack. In the Indonesian EFL secondary school context specifically, empirical research on TTS-supported listening remains particularly limited.

The present study addresses these gaps by examining how Substack's Play Audio feature supports the independent listening development of Grade X and XI students at SMA Shalahuddin Malang, Malang City, East Java, Indonesia. Unlike previous studies that relied on purpose-built TTS tools in researcher-controlled settings (Avrianti et al., 2025; Tai & Chen, 2022; Fitria, 2025), this study focuses on voluntary, out-of-class engagement with a general-audience platform. More specifically, it investigates how simultaneous reading and listening through Play Audio affects students' listening comprehension, vocabulary recognition, and motivation for autonomous practice. In doing so, it demonstrates that everyday digital platforms, not solely dedicated language learning applications, can meaningfully and affordably support EFL listening development in resource-constrained secondary school settings (Davis, 1989; Stockwell, 2010; Golonka et al., 2012).

2. Method

This study employs a qualitative case study design to investigate how EFL learners use TTS technology for independent listening in a real educational context. A qualitative approach was selected because it enables an in-depth understanding of participants' experiences, perspectives, and interpretations. As Yin (2018, p. 15) explains, the case study design is appropriate for research that aims to understand a specific, real-world phenomenon, especially when the boundaries between the phenomenon and its context are not clearly defined. The bounded case in this study is the use of Substack's Play Audio feature by a specific group of Indonesian EFL learners in a defined school setting.

Four non-athlete students from Grades X and XI at SMA Shalahuddin Malang participated in this study. Participants were selected using purposive sampling, which allows researchers to identify information-rich cases relevant to the research question (Patton, 2014, p. 264). The selection criteria were: (1) enrolment in the non-athlete stream, and (2) diversity in English proficiency level and prior learning background.

This diversity was important to ensure that the data reflected a broad range of learner experiences rather than those of a homogeneous group. In line with qualitative case study traditions, a small sample size was considered appropriate, as the study prioritises depth of understanding over statistical representativeness (Merriam & Tisdell, 2015). It is important to acknowledge, however, that the small sample size ($n = 4$) is a significant limitation of this study. The findings should not be generalised beyond this specific school context, and future research should

involve larger and more varied participant groups to strengthen transferability.

Three instruments were used to collect data. Individual semi-structured interviews were conducted with each participant to explore their English listening experiences, perceptions, and learning backgrounds. The semi-structured format allowed the researcher to follow prepared questions while remaining open to exploring emerging topics of interest (Kvale, 2007, p. 84). Sample interview questions included: (1) 'How do you usually practise listening in English outside of school?'; (2) 'How did listening while reading at the same time affect your understanding?'; and (3) 'Did using Substack's Play Audio change how you feel about listening in English? If so, how?'

Observations were conducted across three structured sessions in which participants engaged with Substack content using the Play Audio feature. The observation focused on specific behavioural indicators, including: frequency of audio replay, use of the pause function, scrolling between text and audio sections, and spontaneous note-taking of vocabulary items. These observable behaviours provided direct, non-self-reported evidence of engagement and comprehension strategies (Merriam & Tisdell, 2016, p. 139). Field notes were maintained throughout the observation and interview phases to document contextual details, non-verbal cues, and analytical reflections that supplemented the primary data.

Data collection proceeded in four stages. First, the researcher obtained formal permission from the school administration and identified participants through purposive sampling. Second, three structured observation sessions were conducted in which participants engaged with selected Substack content using the Play Audio feature. The researcher observed and documented participant behaviour and recorded field notes during each session. Third, individual semi-structured interviews were conducted with each of the four participants after the observation sessions. Each interview lasted approximately 30 to 45 minutes and was conducted face to face. Fourth, all data from the three sources were compiled, organised, and prepared for analysis.

Data were analysed using thematic analysis following the six-phase framework proposed by Braun and Clarke (2006, p. 87). In Phase 1, the researcher became familiar with the data by repeatedly reading interview transcripts, observation recordings, and field notes. In Phase 2, initial codes were generated by labelling meaningful units of data. For example, a participant statement such as 'I usually replay the audio several times until I understand' was coded as 'replay for comprehension,' which was later grouped under the theme of self-monitoring of comprehension.

In Phase 3, codes were organised into potential themes that captured recurring patterns relevant to the research objectives. In Phase 4, themes were reviewed and refined to ensure internal consistency and clear differentiation between categories. In Phase 5, each theme was named and defined. In Phase 6, findings were written up in descriptive style, with illustrative participant accounts

included to support interpretation. The use of three data sources throughout this process allowed for methodological triangulation, which strengthened the reliability and trustworthiness of the findings (Creswell & Poth, 2017, p. 260; Lincoln & Guba, 1985, p. 305).

To ensure the study's trustworthiness, credibility was supported by prolonged engagement with the data, careful verbatim transcription, and peer discussion to review coding decisions. Dependability was ensured through a documented audit trail of analytic decisions. Confirmability was addressed through researcher reflexivity, in which personal assumptions were continuously monitored to reduce interpretive bias. Transferability was supported by a detailed description of the research context at SMA Shalahuddin Malang, which allows readers to assess whether the findings are relevant to similar settings. Regarding ethical considerations, the school administration granted formal authorization before data collection began. Participants provided informed consent and were fully informed of their right to withdraw at any time. All participants were assigned anonymous codes (S1, S2, S3, S4) instead of their real names, and all data were securely stored and permanently deleted after transcription and verification.

3. Result

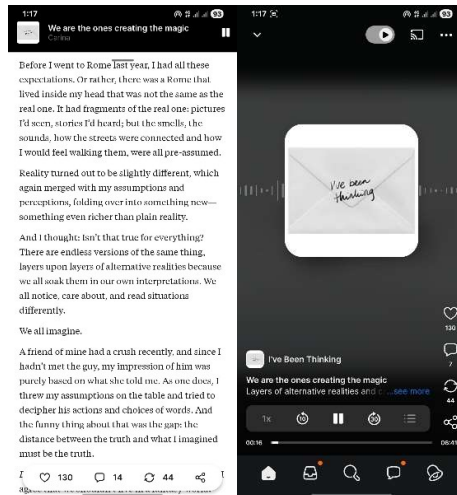
This section presents results based on interview data, observation records, and field notes. Four themes emerged from the data: (1) enhanced listening comprehension, (2) vocabulary acquisition and expansion, (3) understanding of real-world context, and (4) independent listening motivation. These themes are interconnected: improved comprehension through bimodal input facilitated vocabulary acquisition, exposure to real-world content strengthened both comprehension and motivation, and growing motivation led to further independent engagement with the platform. A comparable pattern was identified by Gavenila et al. (2021), whose study of Indonesian EFL university students using TED Talks for extensive listening found the same four benefit areas. Each theme is discussed below, supported by participant responses and observational evidence.

The result are organised around the following theoretical perspectives. Theme 1 (Enhanced Listening Comprehension) is grounded in bimodal input research (Malone, 2018; Sydorenko, 2010) and Vandergrift and Goh's (2021) metacognitive listening framework. Theme 2 (Vocabulary Acquisition and Expansion) is informed by Nation's (2001) model of incidental vocabulary learning through contextual exposure.

Theme 3 (Understanding of Real-World Context) draws on authentic materials theory (Alamri, 2025; Sherina & Hasnawati, 2023). Theme 4 (Independent Listening Motivation) is framed through Benson's (2013) concept of autonomy-supportive learning environments. The following sections detail the findings for each theme, supported by data-driven examples.

Enhanced Listening Comprehension

All four participants reported a notable improvement in their ability to understand spoken English when reading and listening simultaneously through Substack's Play Audio feature. Figures 1 and 2 show the textual and audio interface on the Substack application, which displays the written article and the audio player together on screen. This dual display enabled participants to engage in bimodal input, reading the text while listening to the audio at the same time. Across all three observation sessions, students were consistently observed pausing the audio, re-reading the corresponding written text, and replaying the same passage. These self-directed comprehension strategies were largely absent from participants' accounts of their prior classroom listening experiences. Participants also reported that having access to the written text significantly reduced the anxiety they normally associated with L2 listening tasks.



Figures 1 & 2. The textual and audio interface on the Substack Application

S1 :

"Denger sesuatu sambil baca atau baca sambil dengerin tuh bikin jadi kayak kebantu gitu. Di satu kita ngedengerin, tapi sekaligus kayak divalidasi lewat apa yang kita baca gitu."

("Listening to something while reading or reading while listening makes it feel like it's helpful. On the one hand, we listen, but at the same time we feel validated by what we read.")

This pattern was consistent across all participants. Field notes documented repeated instances of learners returning to earlier sections of an article to verify comprehension before moving forward. Participant 3 also noted that being able to

control playback speed helped reduce the cognitive pressure she normally felt during timed classroom listening tasks.

S3 :

"Aku biasanya susah kalau dengerin apa pun yang berbahasa Inggris karena cepet banget kan ngomongnya. Tapi di sini bisa diulang, jadi lebih pelan-pelan dan diulang-ulang jadi lebih ngerti."

("I usually have a hard time listening to anything in English because they speak so fast. But here I can repeat it, so I listen more slowly and repeat it over and over again to understand better.")

Observation records verified these claims. All participants were observed using the replay function multiple times per session, and field notes revealed that replaying behaviour increased in frequency as the difficulty level of the selected articles increased, suggesting active, metacognitive self-monitoring of comprehension, consistent with what Vandergrift and Goh (2021, p. 25) define as strategic listening.

Vocabulary Acquisition and Expansion

A second prominent theme concerned the role of Substack's Play Audio feature in supporting vocabulary acquisition. Participants reported encountering unfamiliar words in the written text and using the audio component to learn their pronunciation, which they described as facilitating both recognition and retention. Participant 2 specifically noted the value of hearing a word pronounced in natural speech after encountering it in writing, describing it as making the word 'real'.

S2 :

"Banyak kata yang pernah aku lihat sebelumnya tapi nggak tau cara bacanya kan. Tapi begitu denger di audio, jadi kayak kata itu jadi nyata gitu."

("There were many words I had seen before but did not know how to pronounce. When I heard them in the audio, it was like the word became real.")

Observation records further revealed that Participants 1 and 4 kept informal vocabulary list during the sessions, recording both the written form and their phonetic approximation of newly encountered words. This behaviour was spontaneous and was not requested by the researcher, indicating active lexical engagement beyond passive exposure. Participant 4 elaborated on this practice during the interview.

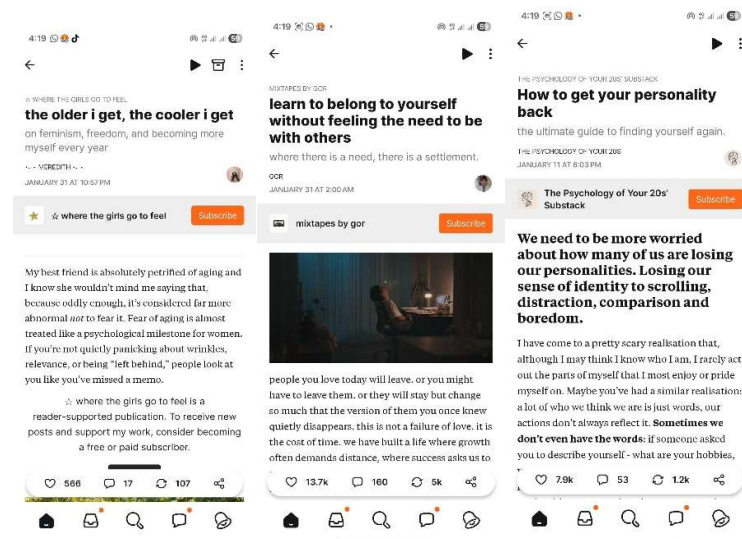
S4 :

"Kalau ada kata baru, aku tulis sih. Terus aku dengerin lagi ulang-ulang biar tau cara ngucapinnya. Jadi nggak cuma tau tulisannya, tapi juga cara ngucapnya."

("If there is a new word, I write it down. Then I listen again to find out how to pronounce it. So I do not only know how it is spelt, but also how it sounds.")

Understanding of Real-World Context

A third theme concerned participants' perception that Substack content exposed them to English language and ideas that were noticeably different from what they encountered in their school textbooks. Participants noted that topics such as current events, cultural commentary, and everyday lifestyle writing made their listening practice feel purposeful and personally relevant.



Figures 3, 4, & 5. Some articles on Substack that are related to real-life context.

S1 :

"Topiknya tuh kayak hal-hal yang beneran terjadi. Jadi pas dengerin, rasanya kayak belajar cara orang beneran ngomong, bukan cuma dari buku."

("The topics are like things that actually happen in real life. So when I listen, it feels like I am learning how real people actually speak, not just from a textbook.")

Participant 3 similarly observed that the language in Substack articles included expressions and sentence constructions she had never encountered in formal instruction, which she found both challenging and motivating.

S3 :

"Ada banyak kata dan kalimat yang belum pernah aku pelajari di sekolah. Awalnya susah, tapi justru malah jadi penasaran."

("There were many words and sentences I had never studied at school. At first it was hard, but that actually made me curious.")

Field notes from the second observation session documented a notable instance in which Participant 2 paused the audio to ask about the meaning of an idiomatic expression, demonstrating genuine engagement with the content beyond basic linguistic processing. This suggests that interacting with Substack extended to comprehension of ideas, an outcome that Alamri (2025, p. 6) identifies as a key benefit of authentic listening materials over scripted classroom exercises.

Independent Listening Motivation

The fourth theme concerned the motivational impact of Substack's Play Audio feature on participants' disposition toward self-directed English listening practice. Before the study, participants reported that independent engagement with English listening outside school was minimal, largely limited to incidental exposure through entertainment media. After the three observation sessions, all four participants reported an increased desire to continue using Substack for listening practice independently.

S2 :

"Sebelumnya nggak pernah kepikiran latihan dengerin sendiri. Tapi sekarang jadi pengen cari artikel lain di Substack karena artikelnya juga relate sama aku. Ada progres juga jadi pengen terusin."

("Before, I never thought about practising listening on my own. But now I want to look for other articles on Substack because the articles are pretty relatable to me, too. I feel like I am kind of making progress, so I want to continue.")

Participant 4 described this shift in terms of a newly formed daily habit, noting that she had begun accessing Substack independently after the first observation session because the content felt relatable and personally relevant.



Figure 6. Article on Sustack that the participant feels relatable to.

S4 :

"Abis sesi pertama, aku mulai buka sendiri buat iseng baca aja kalau pengen nyari sesuatu yang relate. Kayak jadi kebiasaan baru gitu."

("After the first session, I started opening it on my own if I wanted to seek for something relateble. It became like a new habit.")

Field notes documented that by the third observation session, two participants had arrived having already read and listened to additional Substack articles independently between sessions. This unsolicited behaviour provides strong observational evidence of emerging autonomous listening motivation. These findings are consistent across all four participants, suggesting that content autonomy, learner-controlled playback, and perceived linguistic progress collectively created conditions favourable to intrinsic L2 listening motivation. Notably, the participants who showed the greatest improvement in comprehension and vocabulary (Themes 1 and 2) were also the most motivated (Theme 4), suggesting that perceived progress plays an important role in sustaining engagement over time.

4. Discussion

The findings of this study can be understood through an integrated framework: Substack's Play Audio feature provides bimodal input through simultaneous access to written text and synthesised audio. This bimodal input enhances cognitive processing, supporting both listening comprehension and vocabulary acquisition. These cognitive gains, in turn, support learner autonomy through self-paced and controllable engagement. Autonomy, combined with exposure to authentic and personally relevant content, fosters intrinsic motivation for independent listening. The following sections trace each dimension of this framework in relation to existing research.

Listening Comprehension and Bimodal Input

The improvement in listening comprehension observed in this study is consistent with research on bimodal input in L2 learning. Malone (2018) found that reading while listening helps learners connect word forms to meanings more efficiently than reading alone, as receiving input through two channels at once improves how learners relate written and spoken forms (p. 651). A large-scale replication study supported this, confirming that bimodal input benefits vocabulary retention, though its effectiveness may vary depending on learners' first language (The TwiLex Group, 2024, p. 1415). Sydorenko (2010, p. 64) similarly found that learners who received both captions and audio outperformed those who received audio alone in vocabulary gains and written word recognition. The present study extends these findings to a naturalistic, self-directed context outside

the laboratory.

The listening strategies participants adopted in this study, including replaying audio, referring back to the written text, and controlling their pace, reflect the metacognitive framework proposed by Vandergrift and Goh (2021, p. 26), who identify planning, monitoring, and evaluating as key processes that distinguish stronger from weaker L2 listeners. Participants adopted these strategies on their own, without any instruction, suggesting that Substack's Play Audio interface naturally encourages metacognitive listening behaviour. This is noteworthy because most classroom listening tasks do not give learners this level of control over their input.

Incidental Vocabulary Acquisition through Authentic Input

The vocabulary outcomes observed in this study align with Krashen's (1982, p. 21) comprehensible input hypothesis, which holds that vocabulary is most naturally acquired when learners engage with meaningful input that is slightly above their current proficiency level. The Substack content participants encountered was exactly this kind of input: authentic articles written for general adult audiences, containing vocabulary and syntactic complexity that exceeded participants' current level but remained broadly interpretable through contextual inference and the written scaffold. The spontaneous vocabulary-recording behaviour observed in two participants indicates active lexical noticing, a process identified as a prerequisite for incidental vocabulary acquisition (Webb & Yanagisawa, 2023; Chen, 2021).

These findings support Nation's (2001, p. 232) thesis that incidental vocabulary learning is most effective when learners encounter new terms in context-relevant and repeated exposures. Because Substack subscribers regularly receive content from the same authors, learners are likely to encounter the same vocabulary across multiple articles over time. This provides the spaced repetition that Nation (2001, p. 76) identifies as essential for long-term retention, and represents a structural advantage of Substack over one-time classroom listening tasks where vocabulary is typically encountered only once and under time pressure.

Authentic Input and Real-World Contextual Understanding

Participants' consistent perception that Substack content was more linguistically relevant than their school textbooks reflects a well-documented limitation of Indonesian government-issued EFL instructional materials. Sherina and Hasnawati (2023, p. 47) observe that official textbooks predominantly use simplified, scripted language that does not prepare learners for the prosodic complexity and idiomatic variety of real-world English. Alamri (2025, p. 7) similarly argues that authentic materials are more effective for listening development because they expose learners to features of natural speech, including

hesitation markers, connected speech, and culturally embedded references. The present findings support these arguments empirically, demonstrating that learners themselves recognise and value this distinction when given access to authentic content.

The instance documented in field notes, in which a participant paused the audio to ask about an idiomatic expression, is particularly noteworthy. It suggests that authentic input does not merely expose learners to new language passively but can actively encourage inquiry and meaning-making, processes that are central to deep learning (Craik & Lockhart, 1972, p. 675). This finding aligns with Meneses and Gómez-Escalonilla's (2025, p. 8) characterisation of Substack as a platform that invites active intellectual engagement, distinguishing it from more passive digital entertainment media.

Intrinsic Motivation and Autonomous Listening Development

The motivational outcomes documented in this study represent perhaps its most important pedagogical contribution. The emergence of spontaneous, self-initiated listening behaviour, particularly the independent Substack access reported by two participants between sessions, provides strong evidence that the platform's design features can build intrinsic motivation for independent L2 listening practice. This finding aligns directly with Self-Determination Theory (Deci & Ryan, 2000, p. 237), which predicts that learning environments supporting autonomy, competence, and relatedness will produce deeper engagement than those that suppress these needs.

These findings complement those of Avrianti et al. (2025, p. 491), who demonstrated increased student engagement in TTS-assisted listening in a quasi-experimental study. The present work extends this line of investigation by identifying the specific platform features, including content selection, replay control, authentic input, and perceived progress, that appear to drive motivational effects in a naturalistic, non-experimental setting. Together, these features constitute what Benson (2013, p. 50) calls an autonomy-supportive learning environment: one in which learners have genuine control over the process, pace, and content of their language development.

Theoretical and Methodological Contributions

This study makes two distinct contributions to the literature. Theoretically, it demonstrates that the TTS-bimodal input-autonomy-motivation framework, previously tested in controlled settings, can also operate in naturalistic, self-directed digital learning environments. The study extends existing research by showing that a general-audience platform (Substack) can function as an effective TTS-based listening tool when learners have genuine control over their content and pace. Methodologically, the use of multiple data sources (semi-structured interviews, structured observation, and field notes) within a qualitative case study

design provides a replicable model for investigating informal digital language learning in under-resourced school contexts. Future studies may build on this framework by working with larger participant groups, incorporating formal assessment instruments, and examining long-term retention effects.

5. Conclusion

This study examined how Substack's Play Audio TTS feature supports independent EFL listening development. The findings were positive across all four identified themes. In terms of listening comprehension, participants processed and understood spoken English more effectively through the bimodal input provided by simultaneous text and audio. As Grade X and XI students at SMA Shalahuddin Malang who are still developing their L2 listening competence, these students had limited prior exposure to authentic English input. This study highlights the important role that accessible digital listening tools can play in supporting their ongoing development.

The findings have practical implications for education at both the secondary and university levels in Indonesia. Teachers and pre-service teachers should be aware of the benefits of integrating TTS-based digital platforms into their instructional practice, as these platforms give students access to authentic L2 listening input that classroom materials alone cannot replicate. Teachers who understand platform-based listening affordances are better positioned to design tasks that extend meaningfully into students' independent learning lives and help students move from guided classroom listening to autonomous L2 engagement.

When integrating digital listening tools such as Substack into practice, teachers should also provide clear guidance to students who are unfamiliar with using such platforms independently. Structured reflection through observation, written feedback, and lesson debriefing can further transform learners' incidental encounters with digital content into deliberate and effective L2 listening experiences.

This study aimed to understand the potential of technology-assisted listening for improving practical English language use among Indonesian EFL students. Because participants came from a specific school setting with limited access to diverse listening input, the study is directly relevant for educators and curriculum developers who seek to improve real-world L2 listening competence.

In many Indonesian government school textbooks, audio materials remain insufficiently representative of authentic English speech, as scripted content does not prepare learners for the prosodic and lexical complexity of genuine spoken discourse. This area requires continued development, specifically through the intentional integration of contextually rich, platform-based audio tools so that students develop a genuine and transferable understanding of how English sounds and functions in real communicative contexts.

This study has several limitations. The small sample size ($n = 4$), single-school

setting, and reliance on self-reported perceptions limit the generalisability of the findings. Vocabulary gains and comprehension improvements were inferred from participant reflections and field observations rather than measured through formal assessments.

Future research should involve larger and more varied participant groups, combine objective listening and vocabulary tests, and investigate long-term retention effects. Further studies might also explore how Substack's Play Audio feature can be integrated into structured EFL curricula and examine whether motivational effects persist over time without researcher-facilitated sessions.

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