



Effect of English Listening Software on TOEIC Listening Skills among Undergraduate Students

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Abstract

The purpose of this article was 1) to compare students' achievement in the online English language proficiency test before and after instruction using English listening software, and 2) to study students' satisfaction with using English listening software to enhance listening skills for the TOEIC test at a high level. This study employed a quasi-experimental one-group pretest–posttest design. Qualitative procedures were conducted during the instructional development phase to support the design and validation of the research instruments. The research participants were 139 undergraduate students at Nakhon Pathom Rajabhat University. The participants were enrolled in English courses taught by the researcher. The research instruments included the English listening software, seven units of listening exercises, an online English language proficiency test, and a satisfaction questionnaire. Quantitative data were analyzed using the mean ($\bar{X}$), standard deviation (S.D.), and paired-samples t-test. Qualitative data obtained during the instructional development phase were analyzed using content analysis. The research findings regarding the effectiveness of the English listening software indicated that students' online English language proficiency test scores after instruction were significantly higher than those before instruction. The mean pre-test score was 3.50 (S.D. = 2.20), while the mean post-test score increased to 5.27 (S.D. = 2.71). The improvement was statistically significant ($t(138) = 7.12, p < .001$). The students reported a high level of satisfaction with using the English listening software to enhance their TOEIC listening skills, with an overall mean score of 3.55 (S.D. = 1.00). These findings suggest that integrating English listening software into English language instruction may support improvements in TOEIC listening proficiency and provide a positive technology-assisted learning experience in higher education.

Keywords: English Listening Software, TOEIC Listening, Technology-Assisted Language Learning, Students' Satisfaction

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Introduction

English proficiency has become an essential skill for communication in academic, professional, and global contexts. According to the Partnership for 21st Century Learning (P21, 2015), learners should develop communication, critical thinking, collaboration, creativity, and digital literacy skills to succeed in the modern world. As English is widely used as an international language, students need adequate English proficiency to participate effectively in global communication (Samad & Fitriani, 2016).

Among the four language skills, listening is fundamental because it provides the primary source of language input and supports the development of speaking, reading, and writing (Nihei, 2002). Vandergrift (2011) noted that listening accounts for a large proportion of daily communication. However, listening comprehension remains challenging for many English as a Foreign Language (EFL) learners due to limited vocabulary, unfamiliar pronunciation, and difficulties in processing spoken language in real time (Underwood & Killoran, 2009).

Advances in educational technology have created new opportunities for language learning. Multimedia learning environments and authentic video materials provide meaningful language input while promoting learner autonomy and motivation (Krashen, 1994; Vanderplank, 2010). Previous studies have shown that video-based instruction enhances listening comprehension by combining audio and visual information and exposing learners to authentic language used in real-life situations (Chapple & Curtis, 2000; Hoven, 1999). More recently, technology-assisted language learning has been recognized as an effective approach for supporting language development when digital technologies are integrated with appropriate pedagogical design, authentic learning materials, and structured instructional activities (Chen & Xu, 2026; Kaur et al., 2023). One example is Lingua Attack, an online English listening software that provides authentic videos and interactive learning activities, enabling learners to practice listening independently at their own pace.

Recognizing the importance of English proficiency, Nakhon Pathom Rajabhat University (NPRU) requires undergraduate students to achieve a minimum TOEIC score of 450 for non-English majors and 600 for English majors. Although the university has strengthened its English curriculum, many students continue to experience difficulties in listening comprehension, which affects their TOEIC skills. To address this issue, NPRU has provided students with access to English listening software to support independent listening practice both inside and outside the classroom.

Although previous studies have demonstrated the effectiveness of multimedia and video-based instruction in improving English listening comprehension (Chapple & Curtis, 2000; Hoven, 1999; Vanderplank, 2010), limited research has specifically examined the effectiveness of English listening software for improving TOEIC listening skills among undergraduate EFL students in the Thai higher education context. Furthermore, few studies have investigated both students' TOEIC listening achievement and their satisfaction with English listening software within the same instructional program. Therefore, further research is needed to provide empirical evidence regarding the effectiveness of English listening software in TOEIC preparation. Based on the literature reviewed, this study hypothesized that students would achieve significantly higher post-test scores than pre-test scores after instruction using English listening software and would report a high level of satisfaction with the use of the software.

Research Objectives

1. to compare students' achievement in the online English language proficiency test before and after instruction using English listening software, and

2. to study students' satisfaction with using English listening software to enhance listening skills for the TOEIC test at a high level

Literature Review

This chapter reviews the theories and empirical studies related to the use of English listening software for improving TOEIC listening skills among university students. The review is organized into six sections: Second Language Acquisition Theory, Listening and Listening Comprehension, Listening Strategies and Listening Comprehension Skills, Effective Listening, and TOEIC Listening Skills.

Second Language Acquisition Theory

Krashen's Theory of Second Language Acquisition provides the theoretical foundation for this study. According to Krashen (1981), learners acquire a second language most effectively when they are exposed to meaningful and comprehensible language input rather than relying solely on grammar instruction. Among Krashen's five hypotheses, the Input Hypothesis states that learners make progress when they are exposed to language that is slightly beyond their current level of proficiency, while the Affective Filter Hypothesis emphasizes that motivation, confidence, and low anxiety promote successful language learning. These principles support the use of English listening software because it provides authentic listening materials that learners can access repeatedly, practice at their own pace, and use independently. Therefore, Krashen's theory provides a suitable theoretical foundation for integrating English listening software into TOEIC listening instruction.

Listening and Listening Comprehension

Listening is a fundamental language skill because it provides learners with the primary source of language input. Unlike hearing, listening is an active process that involves recognizing sounds, understanding vocabulary and grammar, and interpreting meaning from spoken language. Rost (2009) emphasized that listening is essential for effective communication, while Jafari and Hashim (2015) noted that learners spend a considerable amount of time developing listening skills. Listening also serves as the foundation for developing other language skills, including speaking, reading, and writing (Thai & Nguyen, 2018).

Listening comprehension involves more than recognizing words; it is the process of constructing meaning by combining linguistic knowledge with prior knowledge and contextual information. Learners actively interpret both explicit and implied meanings rather than simply receiving spoken messages. Successful listening comprehension therefore requires the integration of language knowledge, cognitive processing, and listening strategies (Brown & Yule, 1983; Rost, 2024).

Listening Strategies and Listening Comprehension Skills

Listening comprehension is developed through the integration of bottom-up and top-down processing, which complement one another during the interpretation of spoken language. Bottom-up processing focuses on decoding linguistic input by recognizing sounds, vocabulary, grammatical structures, and sentence patterns to construct meaning sequentially from smaller language units to complete messages (Field, 2008; Vandergrift, 2011). This process is particularly important for learners with lower levels of English proficiency because it strengthens their ability to identify explicit information, recognize key vocabulary, and understand grammatical relationships in spoken discourse. Newton and Nation (2020) further emphasized that bottom-up processing involves recognizing familiar lexical items, segmenting

the speech stream, identifying phonological cues, and organizing grammatical information to facilitate comprehension.

In contrast, top-down processing enables learners to construct meaning by drawing upon their prior knowledge, experiences, contextual information, and expectations to interpret spoken messages (Buck, 2001; Newton & Nation, 2020). Rather than relying solely on linguistic input, learners use background knowledge and contextual clues to predict meaning, make inferences, identify the main idea, and summarize information. Consequently, top-down processing supports higher-order comprehension by allowing learners to interpret both explicit and implied meanings within authentic communication.

Previous studies consistently suggest that effective listening comprehension is achieved by integrating both bottom-up and top-down processing. While bottom-up processing enables learners to decode linguistic information accurately, top-down processing facilitates the interpretation of meaning through contextual understanding and prior knowledge. Based on this synthesis, the present study incorporated both processing approaches into the design of the seven TOEIC listening practice units delivered through the English listening software. The instructional activities required students to identify key vocabulary, recognize specific details, interpret context, predict meaning, and make inferences, thereby developing the listening skills assessed in the TOEIC Listening Test.

The literature also identifies several key listening comprehension skills that are important for English language learners and TOEIC listening skills. These include listening for the main idea, listening for specific details, prediction, inference, interpretation, and summarization (Abu El-Magd, 2021; Ahmed, 2015; Craven, 2020; NCLRC, 2004). However, these skills are described using different terminology and classifications across previous studies. Therefore, the present study synthesized the literature to identify a set of listening-skill indicators that are consistently associated with successful TOEIC listening comprehension.

Table 1 Synthesis of Listening Comprehension Skills

Authors	Listening Skills Identified	Adopted in This Study
Abu El-Magd (2021)	Listening for specifics, details, cause-effect	Main idea, Details
Ahmed (2015)	Specific information, gist, prediction	Prediction, Details
National Capital Language Resource Center (2004)	Main idea, details, predicting, inferring, context	Main idea, Prediction, Inference
Craven (2020)	Main idea, specific details, inference, interpretation, summary	Interpretation, Summary
Synthesized Indicators		Main idea, Specific details, Prediction, Inference, Interpretation, Summary

The synthesis of previous studies indicates that listening comprehension is a multidimensional construct comprising several interrelated skills. According to the reviewed literature (Abu El-Magd, 2021; Ahmed, 2015; Craven, 2020; NCLRC, 2004), six listening skills were consistently identified despite variations in terminology and classification. These skills comprise listening for the main idea, listening for specific details, prediction, inference, interpretation, and summarization. Collectively, they reflect learners' ability to process spoken language by identifying explicit information, constructing meaning from contextual clues, and making inferences from spoken discourse.

Based on this synthesis, the present study adopted six listening-skill indicators: listening for the main idea, listening for specific details, prediction, inference, interpretation, and summarization. These indicators informed the development of the seven TOEIC listening practice units and the instructional activities provided through the English listening software. Each instructional unit was designed to provide systematic practice in one or more of these listening skills through authentic listening materials and interactive exercises. Furthermore, the selected indicators are consistent with the listening competencies assessed in the TOEIC Listening Test, including understanding main ideas, identifying specific details, recognizing context, and interpreting implied meaning (ETS, 2022).

The synthesis also informed the instructional design of this study. The seven TOEIC listening practice units were developed to provide systematic practice in the six listening-skill indicators identified from the literature. Each instructional unit incorporated authentic listening materials and learning activities that enabled students to practice identifying main ideas, recognizing specific details, predicting content, making inferences, interpreting meaning, and summarizing information. These synthesized listening-skill indicators also guided the development of instructional activities and the evaluation of students' TOEIC listening skills.

Effective Listening

Effective listening requires more than understanding spoken language; it also involves remembering, interpreting, evaluating, and responding appropriately. Brownell (2024) proposed the HURIER model, which consists of six interconnected processes: Hearing, Understanding, Remembering, Interpreting, Evaluating, and Responding. According to this model, listeners must first hear the message accurately before understanding its meaning, retaining important information, interpreting verbal and non-verbal cues, evaluating the information critically, and responding appropriately. These processes illustrate that listening is a multidimensional skill involving cognitive, affective, and interpersonal competencies. Consequently, effective listening instruction should encourage learners not only to understand spoken language but also to think critically and respond meaningfully during communication.

TOEIC Listening Skills

The Test of English for International Communication (TOEIC) is a widely used English proficiency test that measures listening skills in workplace communication. According to Educational Testing Service (ETS, 2022), the TOEIC Listening Test consists of four sections: Photographs, Question–Response, Conversations, and Talks. These tasks assess learners' ability to understand main ideas, specific details, context, and implied meanings in spoken English. Similarly, Educational Testing Service stated that successful TOEIC listening skills require learners to identify gist, purpose, detail, context, and implied meaning.

Technology-Assisted Language Learning and English Listening Software

Recent developments in technology-assisted language learning (TALL) indicate that digital technologies have become an integral component of English language instruction, particularly following the COVID-19 pandemic. Contemporary research consistently suggests that digital learning environments are most effective when technology is integrated with sound pedagogical design, authentic learning materials, and meaningful instructional activities rather than functioning as stand-alone learning tools (Chen & Xu, 2026; Kaur et al., 2023).

Similarly, recent studies have demonstrated that technology-assisted listening instruction can enhance English listening comprehension by providing learners with repeated exposure to authentic spoken language, interactive learning activities, and greater opportunities for self-directed practice. For example, Pei et al. (2023) found that a structured 14-week online

listening program significantly improved university EFL students' listening comprehension, while Chen and Xu (2026) concluded through a meta-analysis that technology-enhanced language learning consistently improves second-language achievement when digital technologies are integrated into well-designed instructional activities. Collectively, these findings suggest that the effectiveness of digital language learning depends not only on the technology itself but also on how technology is incorporated into instructional practice.

Although previous studies provide strong evidence supporting technology-assisted language learning, relatively few have specifically examined the integration of English listening software into TOEIC listening instruction among Thai undergraduate students. Most existing studies have focused on general English listening comprehension or online language learning rather than TOEIC-oriented listening development. Therefore, the present study investigates whether English listening software integrated with structured TOEIC listening practice can support listening proficiency among Thai university students.

Conceptual Framework

The conceptual framework shows that the study is based on the theories of Second Language Acquisition, Listening Strategies, and Effective Listening. These theories support the use of English Listening Software (Lingua Attack) to improve TOEIC listening skills and increase TOEIC listening scores. Students' satisfaction was also evaluated as an outcome of the intervention.

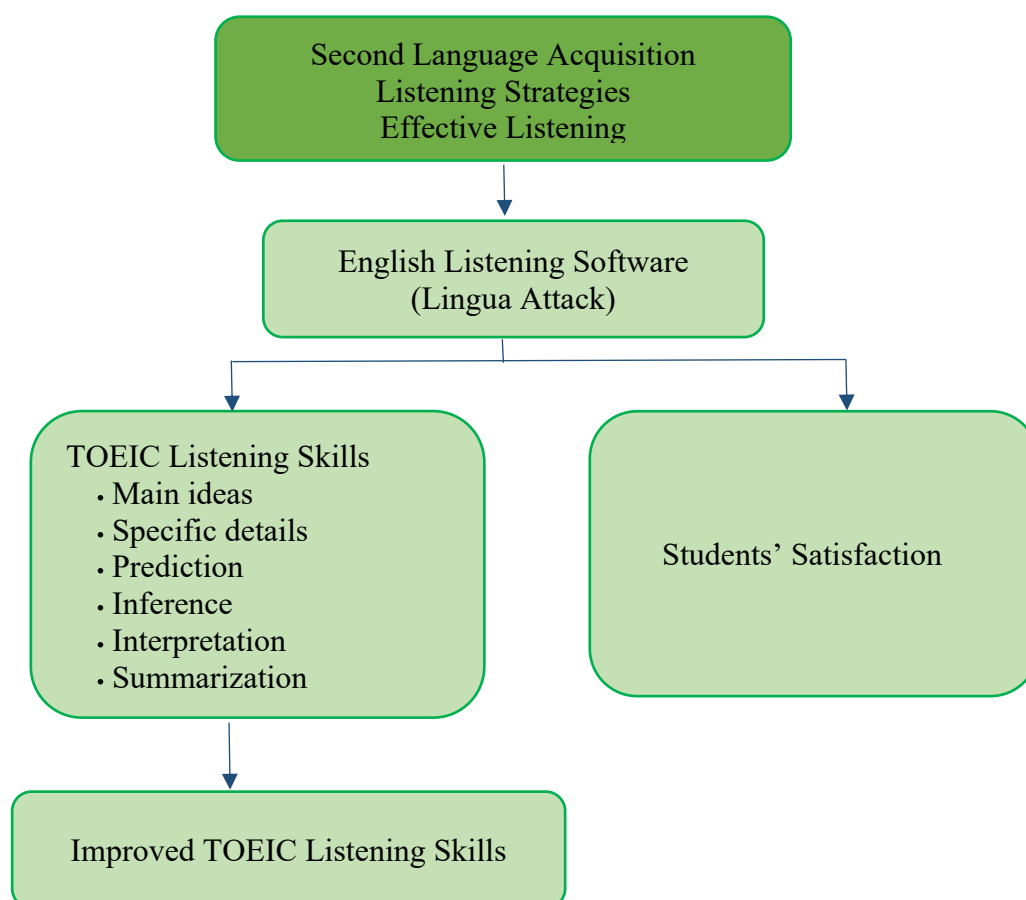


Figure 1 Conceptual Framework
Research Methodology

This study employed a quasi-experimental one-group pretest–posttest design. Qualitative procedures, including a focus group discussion with experienced English lecturers and document analysis, were conducted during the instructional development phase to inform the design of the intervention and validate the research instruments. Qualitative data were analyzed using content analysis. The effectiveness of the intervention and students' satisfaction were subsequently evaluated using quantitative methods. Quantitative data were analyzed using descriptive statistics (mean and standard deviation) and a paired-samples t-test. The research methodology consisted of three phases: Analysis, Implementation, and Data Collection and Evaluation.

Phase 1: Analysis focused on reviewing relevant literature and conducting documentary research on second language acquisition, listening strategies, listening comprehension, TOEIC listening skills, and English listening software. A semi-structured focus group discussion was conducted with three experienced English lecturers to investigate current teaching practices, challenges in TOEIC listening instruction, and opinions regarding the use of English listening software. The qualitative findings, together with the literature review, were used to inform the design of the seven TOEIC listening practice units, the instructional activities, and the listening-skill indicators incorporated into the intervention. Data were collected using a document analysis form and a focus group discussion protocol and analyzed through content analysis. The instructional materials, including the seven TOEIC listening practice units, were reviewed for content validity by three experts using the Content Validity Index (CVI). The experts evaluated each item using a four-point relevance scale, and all items demonstrated satisfactory content validity. The satisfaction questionnaire was evaluated by the same three experts using the Index of Item-Objective Congruence (IOC) with a three-point rating scale (–1 = not congruent, 0 = uncertain, and +1 = congruent). All questionnaire items achieved IOC values of 0.50 or higher and were therefore considered acceptable for data collection.

Phase 2: Implementation employed a quasi-experimental one-group pretest–posttest design to investigate the effectiveness of English listening software on undergraduate students' TOEIC listening skills. The target population consisted of all undergraduate students enrolled in English for Intercultural Communication (81500201) and English for International Communication (1500202) at Nakhon Pathom Rajabhat University during the second semester of the 2022 academic year. During that semester, more than 400 students were enrolled in English for Intercultural Communication (1500201), and approximately 800 students were enrolled in English for International Communication (1500202). A convenience sampling method was employed because the researcher was assigned to teach two sections of these courses. The sample size reflected the total number of students enrolled in the researcher's two assigned course sections who met the inclusion criteria during the study period. The sample consisted of 139 second-year undergraduate students enrolled in the researcher's classes who completed the 14-week instructional intervention, including the pre-test, post-test, and satisfaction questionnaire. The inclusion criteria required participants to be enrolled in either course, and complete all research procedures.

The study was approved by the Human Research Ethics Committee of Nakhon Pathom Rajabhat University prior to data collection. All participants received a participant information sheet and provided written informed consent before participation. Participation was voluntary, and participants could withdraw at any time without academic consequences. All personal information was kept confidential and reported only in aggregate form.

The research instruments consisted of

2.1 English Listening Software (Lingua Attack): An online learning platform using authentic videos and interactive language-learning activities to develop English listening skills.

2.2 TOEIC Listening Practice Units: Seven TOEIC-related listening units were developed from the English listening software to provide structured listening practice and strategy instruction.

2.3 Online English Language Proficiency Test: The EduSynch test is a standardized adaptive English proficiency test designed to assess English language proficiency. It was administered as both the pre-test and post-test, with only the listening section used in this study. The test reports on students' listening proficiency according to the Common European Framework of Reference for Languages (CEFR).

Although the EduSynch assessment reports CEFR proficiency levels rather than direct TOEIC scores, the Educational Testing Service (ETS), the developer of the TOEIC test, has established an official concordance between TOEIC Listening and Reading scores and CEFR proficiency levels through the TOEIC–CEFR mapping framework (Educational Testing Service [ETS], 2022). EduSynch also adopts this internationally recognized CEFR–TOEIC mapping framework when reporting learners' proficiency (EduSynch Team, 2025). Accordingly, the CEFR proficiency levels generated by the EduSynch assessment were used as indicators of students' English listening proficiency that could be interpreted with reference to the TOEIC–CEFR concordance, rather than as direct measures of TOEIC listening skills.

Because the EduSynch assessment reports listening proficiency as CEFR levels rather than continuous numerical scores, the reported CEFR levels were converted into numerical values to facilitate quantitative analysis and comparison between the pre-test and post-test results. A 13-point ordinal scale ranging from 0 to 12 was used, with the following coding scheme: A0 = 0, A1– = 1, A1 = 2, A1+ = 3, A2– = 4, A2 = 5, A2+ = 6, B1– = 7, B1 = 8, B1+ = 9, B2– = 10, B2 = 11, and B2+ = 12. A higher numerical value represented a higher level of English listening proficiency. Each student's reported CEFR level was assigned the corresponding numerical value before the mean, standard deviation, and paired-samples t-test were calculated. These numerical values represented ordered CEFR proficiency categories and were not direct TOEIC scores.

2.4 Students' Satisfaction Questionnaire: A researcher-developed 15-item, five-point Likert-scale questionnaire was used to examine students' satisfaction with using the English listening software across four dimensions: content, language, benefits of the software, and software organization and exercises. The questionnaire was validated by three experts using the Index of Item-Objective Congruence (IOC). Minor revisions were made based on the experts' recommendations before administration, indicating satisfactory content validity.

Phase 3: Data Collection and Evaluation focused on evaluating the effectiveness of integrating English listening software into TOEIC listening instruction.

The quantitative evaluation consisted of two components.

3.1 Learning Achievement Evaluation: Students' pre-test and post-test scores on the online English language proficiency test were compared using a paired-samples t-test to determine whether the intervention significantly improved TOEIC listening skills. A graph was also used to illustrate changes in students' listening proficiency before and after the intervention.

3.2 Students' Satisfaction Evaluation: Students completed the 15-item satisfaction questionnaire. Responses were analyzed using the mean ($\bar{x}$) and standard deviation (S.D.) to determine the overall level of satisfaction across the four dimensions.

Overall, the three-phase research methodology provided a systematic process for designing, implementing, and evaluating the English listening software intervention to improve undergraduate students' TOEIC listening skills.

Results

This section presents the findings of the study entitled The Effect of English Listening Software on TOEIC Listening Skills among Undergraduate Students. The findings are organized according to the research objectives and are presented in two sections. The first section reports the quantitative comparison of students' English listening proficiency before and after instruction using the English listening software. The second section presents students' satisfaction with the use of the English listening software.

The first research objective was to compare students' achievement on the online English language proficiency test before and after instruction using the English listening software. The online English language proficiency test reports listening proficiency according to the Common European Framework of Reference for Languages (CEFR). The CEFR proficiency levels were numerically coded for statistical analysis as described in Research Methodology. Table 2 presents paired samples statistics for the online English language proficiency test

Table 2 Paired Samples Statistics for the Online English Language Proficiency Test

Online English Language Proficiency Test	n	($\bar{x}$)	S.D.
Pre-test	139	3.50	2.20
Post-test	139	5.27	2.71

Note. CEFR proficiency levels were coded as follows: A0 = 0, A1- = 1, A1 = 2, A1+ = 3, A2- = 4, A2 = 5, A2+ = 6, B1- = 7, B1 = 8, B1+ = 9, B2- = 10, B2 = 11, and B2+ = 12. As presented in Table 2, the mean coded CEFR listening proficiency score increased from 3.50 (SD = 2.20) on the pretest to 5.27 (SD = 2.71) on the posttest. This increase indicates that, on average, students achieved higher CEFR listening proficiency levels following instruction using the English listening software.

Table 3 Paired-Samples t-Test Results for the Online English Language Proficiency Test

Comparison	Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>
Posttest - Pretest	1.77	7.12	138	< .001

** Significant at the 0.05 level ($p < 0.05$).

As shown in Table 3, the paired-samples t-test revealed a statistically significant difference between the pretest and posttest scores, $t(138) = 7.12$, $p < .001$. The mean score increased by 1.77 points, indicating that students achieved significantly higher scores on the online English language proficiency test after instruction using English listening software. Figure 2 Comparison of CEFR Levels on Online English Language Proficiency Test

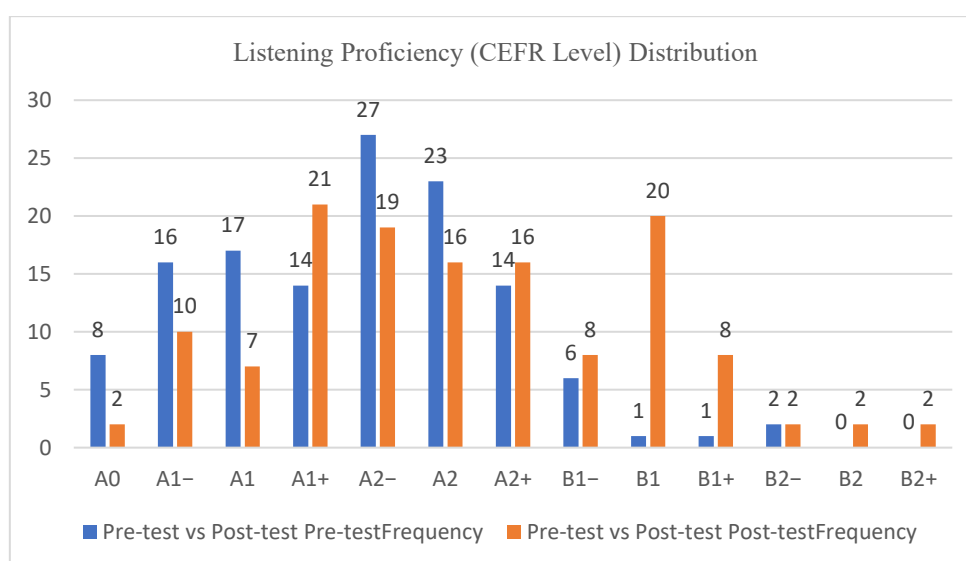


Figure 2 illustrates the distribution of students' listening proficiency levels before and after using the English listening software.

Before the intervention, most students were at the A2- ($n = 27$), A2 ($n = 23$), A1+ ($n = 14$), and A2+ ($n = 14$) proficiency levels. After the intervention, the distribution shifted toward higher proficiency levels, with noticeable increases in the number of students achieving A1+ ($n = 21$), B1 ($n = 20$), A2+ ($n = 16$), and B1+ ($n = 8$). In addition, students reached higher proficiency levels (B2 and B2+) after the intervention, whereas no students achieved these levels before instruction. This shift indicates an overall improvement in students' listening proficiency following the use of the English listening software.

The second objective was to study students' satisfaction with using the English Listening Software to enhance listening skills for the TOEIC test. A questionnaire consisting of 15 items was administered to 139 students. The questionnaire was organized into four dimensions: Content, Language, Benefits of the English Listening Software, and Software Organization and Exercises. Responses were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Table 4 Students' Satisfaction with the Use of English Listening Software

Students' satisfaction	Mean	S.D.*	Satisfaction Level	Rank
Content	3.48	0.95	High	3
Language	3.41	0.99	High	4
Benefits of the English Listening Software	3.95	1.18	High	1
Software Organization and Exercises	3.62	0.99	High	2
Overall	3.55	1.00	High	-

Note. S.D. = Standard Deviation

As presented in Table 4, the overall mean satisfaction score was high ($M = 3.55$, $SD = 1.00$), indicated that students' satisfaction with the English Listening Software was at a high level. Among the four dimensions, Benefits of the English Listening Software received the highest mean score ($M = 3.95$, $SD = 1.18$), followed by Software Organization and Exercises ($M = 3.62$, $SD = 0.99$), Content ($M = 3.48$, $SD = 0.95$), and Language ($M = 3.41$, $SD = 0.99$).

All four dimensions were rated at a high level, indicating that students had positive perceptions of the English Listening Software.

Discussion

The findings of this study indicate that students demonstrated significantly higher listening proficiency following the instructional intervention integrating English listening software with structured TOEIC listening practice. Although the one-group pretest–posttest design does not permit definitive causal conclusions, the statistically significant improvement observed after the intervention suggests that the instructional approach may have supported the development of students' listening proficiency. The intervention combined authentic listening materials, TOEIC-oriented listening practice, and repeated exposure to English in meaningful contexts, which may have contributed to students' improvement.

These findings should also be interpreted within the broader context of recent developments in technology-assisted language learning. Following the COVID-19 pandemic, digital technologies have become increasingly integrated into university English language teaching, with greater emphasis on learner-centered, adaptive, and technology-enhanced learning environments that complement rather than replace classroom instruction (Kaur et al., 2023). Recent literature further suggests that technology-assisted language learning is most effective when digital resources are integrated with appropriate pedagogical design, authentic learning materials, and structured instructional support to promote learner engagement and language development (Kaur et al., 2023). This perspective is consistent with the instructional approach adopted in the present study, in which English listening software was incorporated into structured TOEIC listening activities and classroom instruction rather than being used as a stand-alone learning tool.

The present findings are also supported by recent empirical research on online listening instruction. Pei et al. (2023) reported that a 14-week self-directed online metacognitive listening program significantly improved university EFL students' listening comprehension compared with conventional online listening practice. However, the authors also observed that improvements in metacognitive awareness and self-efficacy were relatively limited, suggesting that successful technology-assisted learning depends not only on digital tools but also on carefully designed instructional activities that actively engage learners throughout the learning process. This interpretation is consistent with the present study, in which English listening software was integrated with structured TOEIC listening practice and teacher-guided learning activities over a 14-week intervention.

Similarly, Chen and Xu (2026) demonstrated through a recent meta-analysis that technology-enhanced language learning significantly improves second-language achievement and can reduce learners' cognitive load when technology is embedded within well-designed instructional activities rather than implemented as an independent learning tool. These findings further support the instructional approach adopted in the present study, which emphasized the pedagogical integration of English listening software with authentic listening materials, listening-strategy instruction, and TOEIC-oriented practice activities.

The analysis of CEFR proficiency levels further demonstrated an overall upward shift in students' listening proficiency following the intervention. Before instruction, most students concentrated at the A2– and A2 proficiency levels, whereas after instruction more students reached the A1+, A2+, B1, and B1+ proficiency levels, and several students attained the B2 and B2+ levels. Although the average improvement of 1.77 points on the coded CEFR scale was statistically significant, it should be interpreted as an upward movement across ordered CEFR proficiency categories rather than as an increase in direct TOEIC scores. Because the numerical values represented coded CEFR proficiency levels rather than continuous TOEIC

scores, the findings indicate progression in listening proficiency levels referenced to the TOEIC–CEFR concordance. These results suggest that integrating English listening software into TOEIC listening instruction may support gradual progression in students' listening proficiency over the course of a semester.

The findings also revealed that students reported a high level of satisfaction with the English listening software. The highest-rated dimension was the perceived benefits of the software, suggesting that students considered the software useful for improving their listening ability and supporting TOEIC preparation. This positive perception may be associated with authentic video-based materials, interactive learning activities, and flexible opportunities for self-paced practice provided through the software. These characteristics are also highlighted in recent discussions of technology-assisted language learning as important features that promote learner engagement, learner autonomy, and sustained participation in digital learning environments (Kaur et al., 2023). In contrast, the Language and Content dimensions received comparatively low mean scores, although both remained at a high level. These findings suggest that while students generally valued the software, further refinement of instructional content and additional language support may further enhance the overall learning experience.

Conclusion and Recommendations

Conclusion

This study investigated the effect of integrating English listening software into TOEIC listening instruction among undergraduate students. The findings indicated that students demonstrated significantly higher listening proficiency after the instructional intervention and reported a high level of satisfaction with the use of the English listening software. Although the one-group pretest–posttest design limits causal inference, the results suggest that integrating authentic listening materials, structured TOEIC listening activities, and technology-assisted learning may support the development of English listening proficiency in higher education. The study contributes empirical evidence from the Thai higher education context by demonstrating that English listening software can be effectively integrated into structured TOEIC instruction to support improvements in listening proficiency while promoting positive learner perceptions. By examining both listening proficiency and student satisfaction within the same instructional program, the study extends previous research and provides practical evidence to inform the integration of technology-assisted learning into university English language instruction

Recommendations

Based on the findings of this study, English listening software may be considered a supplementary resource for TOEIC listening instruction when integrated with structured classroom activities and listening-strategy instruction. English instructors may incorporate authentic listening materials and interactive learning activities to provide students with additional opportunities for guided and self-directed listening practice. Universities may also consider supporting the integration of technology-enhanced listening resources into English language courses where appropriate.

Future research should employ comparison-group or randomized experimental designs involving participants from multiple institutions to provide stronger evidence regarding the effectiveness of English listening software. Researchers may also investigate the long-term effects of technology-assisted listening instruction on listening proficiency, learner motivation, and learner autonomy using standardized measures of English listening proficiency.

References

- Abu El-Magd, M. A. M. (2021). *Webcasts for developing English listening skills among Biology majors at the Faculty of Education*. *Research in Language Teaching*, 2(16), 237–290.
- Ahmed, R. (2015, June 18). *Five essential listening skills for English learners*. British Council. <https://www.britishcouncil.org/voices-magazine/five-essential-listening-skills-english-learners>
- Brown, G., & Yule, G. (1983). *Teaching the spoken language*. Cambridge University Press.
- Brownell, J. (2024). *Listening: Attitudes, principles, and skills* (7th ed.). Routledge.
- Buck, G. (2001). *Assessing listening*. Cambridge University Press.
- Craven, M. (2020). *Pass the TOEIC Test: Advanced Course* (New ed.). First Press ELT
- Chapple, L., & Curtis, A. (2000). Content-based instruction in Hong Kong: Student responses to film. *System*, 28(3), 419–433. [https://doi.org/10.1016/S0346-251X\(00\)00021-X](https://doi.org/10.1016/S0346-251X(00)00021-X)
- Chen, W., & Xu, W. (2026). The effectiveness of technology-enhanced L2 learning in higher education on academic performance from a cognitive load perspective: A meta-analysis. *System*, 140, Article 104068. <https://doi.org/10.1016/j.system.2026.104068>
- EduSynch Team. (2025, June 9). *How TOEIC scores map to CEFR levels*. EduSynch. <https://edusynch.com/blog/test-prep/2025/06/09/how-toeic-scores-map-to-cefr-levels>
- Educational Testing Service. (2022). *Test content: TOEIC Listening and Reading Test*. <https://www.ets.org/toeic/test-takers/listening-reading/about/content>
- Field, J. (2008). *Listening in the language classroom*. Cambridge University Press.
- Hoven, D. (1999). A model for listening and viewing comprehension in multimedia environments. *Language Learning & Technology*, 3(1), 88–103. <https://doi.org/10.64152/10125/25058>
- Jafari, K., & Hashim, F. (2015). Comparison of normal and moderately slow speech rates: Listening to students' voices in listening comprehension classes in EFL context. *International Journal of Foreign Language Teaching in the Islamic World*, 3(3), 5–11.
- Kaur, P., Kumar, H., & Kaushal, S. (2023). Technology-assisted language learning adaptive systems: A comprehensive review. *International Journal of Cognitive Computing in Engineering*, 4, 301–313. <https://doi.org/10.1016/j.ijcce.2023.09.002>
- Krashen, S. D. (1981). *Second language acquisition and second language learning*. Pergamon Press.
- _____. (1994). The input hypothesis and its rivals. In N. C. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 45–77). Academic Press.
- National Capital Language Resource Center. (2004). *Teaching listening: Strategies for developing listening skills*. National Capital Language Resource Center. <http://www.nclrc.org/essentials/listening/stratlisten.htm>
- Newton, J. M., & Nation, I. S. P. (2020). *Teaching ESL/EFL listening and speaking*. Routledge. <https://doi.org/10.4324/978042920311>
- Nihei, K. (2002, March). *How to teach listening* (ERIC Document No. ED475743). ERIC. <https://files.eric.ed.gov/fulltext/ED475743.pdf>

- Pei, T., Suwanthep, J., & Lu, H. (2023). The effect of self-directed online metacognitive listening practice on Chinese EFL learners' listening ability, metacognition, and self-efficacy. *Frontiers in Psychology, 14*, Article 1285059. <https://doi.org/10.3389/fpsyg.2023.1285059>
- Pourhosein Gilakjani, A., & Ahmadi, M. R. (2011). A study of factors affecting EFL learners' English listening comprehension and the strategies for improvement. *Journal of Language Teaching and Research, 2*(5), 977–988. <https://doi.org/10.4304/jltr.2.5.977-988>
- Partnership for 21st Century Learning. (2015). *P21 framework definitions*. http://www.p21.org/storage/documents/docs/P21_Framework_Definitions_New_Log_o_2015.pdf
- Rost, M. (2009). *Teacher development interactive: Listening*. Pearson Longman.
- _____. (2024). *Teaching and researching listening* (4th ed.). Routledge.
- Samad, I. A., & Fitriani, S. S. (2016). English proficiency: A challenge and an opportunity in facing ASEAN Economic Community. *Proceedings of the Annual International Conference of Syiah Kuala University, 1*(1). Syiah Kuala University Press.
- Thai, C. D., & Nguyen, N. Q. (2018). Listening comprehension: First-year English-major students' perceptions and problems. *Can Tho University Journal of Science, 54*(2), 75–83. <https://doi.org/10.22144/ctu.jen.2018.010>
- Underwood, K., & Killoran, I. (2009). Early intervention practice and research in Ontario, Canada: Listening to the field. *Journal of Early Childhood Teacher Education, 30*(3), 298–305. <https://doi.org/10.1080/10901020903084439>
- Vandergrift, L. (2011). Second language listening. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (Vol. 2, pp. 455–471). Routledge.
- Vanderplank, R. (2010). Déjà vu? A decade of research on language laboratories, television and video in language learning. *Language Teaching, 43*(1), 1–37. <https://doi.org/10.1017/S026144480999026>