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The Effect of Using Earphones on the Improvement of TOEFL Listening Comprehension Scores among Second-Semester Students of the Faculty of Agriculture at Universitas Indonesia Timur

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ABSTRACT

This study aims to examine the effect of using earphones on improving students' TOEFL listening comprehension performance. The research employed a quasi-experimental design with two groups: an experimental group using earphones and a control group without earphones. A total of 60 students participated in the study, with 30 students assigned to each group. The research instrument was a TOEFL Listening test administered in both pre-test and post-test sessions. The findings revealed a significant improvement in the experimental group's scores. The average TOEFL Listening score in the earphone group increased from 420 in the pre-test to 470 in the post-test (+50 points). In contrast, the control group's average score improved only from 415 in the pre-test to 430 in the post-test (+15 points). These results indicate that the use of earphones can enhance students' concentration and comprehension during listening tasks, which in turn positively affects their TOEFL Listening outcomes. This study highlights the need for further investigation, as listening comprehension performance is not solely determined by supportive devices such as earphones but also by internal factors, including students' language proficiency, listening strategies, and concentration levels during the test. Accordingly, this research contributes to a deeper understanding of the factors influencing students' success in TOEFL, particularly in the listening comprehension section.

Keywords: TOEFL, listening comprehension, earphones, English language learning

INTRODUCTION

Listening comprehension is a fundamental skill in English language learning, particularly in the context of the *Test of English as a Foreign Language* (TOEFL). This skill requires students to process spoken information quickly and accurately, which often poses a significant challenge for foreign language learners. In the TOEFL test, the listening section is designed to assess the extent to which test-takers can identify main ideas, important details, implied meanings, and speakers' attitudes across various discourse types, including short conversations, extended dialogues, and academic lectures.

Several factors may influence listening comprehension performance. External factors include environmental conditions, audio quality, background noise, and the devices used during listening activities. Internal factors encompass vocabulary knowledge,

grammatical competence, information processing speed, and listening strategies employed by the learners. Beyond linguistic aspects, affective factors such as motivation, self-confidence, and anxiety levels also play a crucial role in shaping students' ability to concentrate and comprehend spoken materials effectively.

The factors influencing TOEFL performance, particularly in the listening comprehension section, can be categorized into several domains.
a) **Linguistic factors**, including vocabulary knowledge, grammar mastery, pronunciation, and intonation. The stronger a student's linguistic competence, the easier it becomes to comprehend TOEFL listening materials.
b) **Cognitive factors**, such as information processing speed, the ability to connect details with context, and the use of both bottom-up and top-down processing in interpreting spoken input.
c) **Affective factors**, which refer to psychological conditions including motivation, anxiety levels, concentration, and self-confidence.
d) **Strategic factors**, namely the application of listening strategies—cognitive, metacognitive, and socio-affective—to help students identify main ideas, capture key details, and infer implied meanings from the audio materials.

Therefore, students' success in TOEFL listening comprehension is not solely determined by technical aspects such as sound clarity or listening devices, but also by a complex interplay of linguistic, cognitive, affective, and strategic elements. This suggests that improving listening skills requires a comprehensive approach, encompassing not only the provision of supportive tools but also practice in listening strategies, vocabulary enrichment, and confidence-building.

In practice, the use of earphones is often considered an external factor that may enhance students' comprehension of audio materials. Earphones are believed to improve sound clarity, reduce background noise, and help students maintain focus during listening tasks. Nevertheless, the extent to which earphone use significantly affects TOEFL listening outcomes still requires empirical validation.

Previous studies have demonstrated that the quality of audio devices has a considerable impact on listening comprehension. Goh (2000) emphasized that the clarity of auditory input is one of the most critical external factors in listening proficiency. Similarly, Rost (2011) noted that high-quality audio media can help reduce listeners' cognitive load. On the other hand, Buck (2001) argued that although technical factors such as earphone use may enhance sound clarity, listening test performance is more strongly influenced by internal factors, including vocabulary knowledge, listening strategies, and students' concentration levels.

Therefore, empirical investigation into the use of earphones in the context of TOEFL Listening is essential. This study is expected to contribute to clarifying whether supportive devices such as earphones significantly influence students' listening comprehension performance, or whether internal factors remain more dominant in determining their success.

Moreover, this line of inquiry is crucial because it highlights that improvements in listening comprehension are not solely determined by external tools, but rather by internal learner factors such as linguistic competence, listening strategies, and test concentration. This aligns with Vandergrift's (1999) perspective, which stresses that listening comprehension is a complex process involving the interaction of linguistic knowledge, cognitive strategies, and psychological conditions of the listener.

Accordingly, this study seeks to contribute to a deeper understanding of the factors influencing students' success in the TOEFL test, particularly in the listening comprehension section. Furthermore, the study provides opportunities for the development of learning strategies that emphasize not only linguistic competence and listening strategy training, but also the management of students' affective factors. With a more comprehensive understanding, educational institutions are expected to design listening instruction approaches that go beyond technical aspects and focus on the sustainable development of learners' internal skills.

In light of these considerations, this study was conducted to compare the TOEFL listening comprehension scores of students under two conditions: without using earphones and with the use of earphones.

LITERARY REVIEW

According to Vandergrift and Goh (2012), listening comprehension is an active process that involves perceiving, interpreting, and constructing meaning from spoken messages. Success in listening comprehension tests is not merely determined by the quality of media or devices (such as earphones), but is more strongly influenced by cognitive factors, including vocabulary knowledge, processing speed, and concentration ability.

Thus, while earphones may help clarify sounds, they do not necessarily yield significant differences in test results if learners' fundamental listening skills remain limited.
Brown (2007) emphasizes the role of *individual differences*, highlighting that language test performance is also affected by learners' motivation, concentration level, listening strategies, and listening anxiety. Consequently, even if test conditions are altered (with or without earphones), students' outcomes may remain unchanged because internal factors tend to outweigh technical ones.

From the perspective of Second Language Acquisition (SLA), Ellis (2008) explains that second language learning is shaped by the interaction between internal factors (linguistic ability, motivation, learning strategies) and external factors (environment, learning media, devices). In this study, although earphones as an external factor may improve input clarity, students' internal factors such as vocabulary and grammar knowledge remain dominant, resulting in nonsignificant score improvement.

The Technology Acceptance Model (TAM) also provides relevant insights. It posits that technology adoption is influenced by *perceived usefulness* and *perceived ease of use*. In this context, earphones may be perceived as useful for clarifying audio, but if students do not perceive a substantial difference in comprehension, test results are unlikely to change significantly. Listening strategies are also divided into metacognitive strategies (e.g., planning, monitoring, evaluating comprehension) and cognitive strategies (e.g., guessing meaning, note-taking, identifying keywords). The present findings support this view, as listening success appears to depend more on learners' strategies than on technical devices such as earphones.

Rost's (2011) *Noise and Signal Clarity Theory* further explains that noise and signal clarity can influence listening comprehension. However, when tests are administered under controlled conditions (e.g., relatively quiet rooms), differences between using and not using earphones may not be significant. This aligns with the current study's findings. From the perspective of *Communicative Competence Theory*, listening comprehension requires not only grammatical competence (mastery of grammar) but also strategic competence (the ability to overcome communication gaps). Earphones do not automatically enhance strategic competence; hence, students with limited listening strategies may still struggle even with clearer audio.

Finally, Mayer's (2019) *Multimedia Learning Theory* emphasizes that learning becomes more effective when media reduce cognitive load. While earphones can provide technical support by clarifying sounds, TOEFL listening tasks remain linguistically complex, so their overall effect on test performance is limited. Taken together, these theories suggest that earphones may help improve sound clarity but are only external aids. The primary determinants of listening comprehension performance remain internal factors, such as linguistic competence, cognitive processing, and listening strategies. Therefore, the nonsignificant results of this study are consistent with the theoretical perspective that external devices play a secondary role, whereas students' internal abilities are more dominant in determining TOEFL listening test outcomes.

RESEARCH METHODS

This study employed a quasi-experimental design with a *one group pre-test and post-test* model. This design was chosen to examine the effect of using earphones on the improvement of TOEFL listening comprehension scores.

The participants were subjected to two treatments:

1. **Stage I (Pre-test, without earphones):** students completed the TOEFL listening comprehension test without using earphones.
2. **Stage II (Post-test, with earphones):** students completed the same test while using earphones, in order to determine whether there was a significant difference in scores.

The population of the study consisted of students from Study Program X at University Y. A sample of 30 students was selected using a purposive sampling technique based on specific criteria. The research instrument was a TOEFL listening comprehension test adapted from ETS standard materials, consisting of 50 multiple-choice questions covering the three main sections of TOEFL Listening.

The students' scores were categorized into three levels—low, medium, and high—based on score intervals. Data analysis was carried out in two stages:

- **Descriptive statistics** were used to obtain the mean, minimum, maximum scores, and the distribution of students' performance across categories.
- **Inferential statistics** were applied using a paired sample t-test to identify differences in scores before and after the treatment. The level of significance was set at $p < 0.05$, and all calculations were performed using SPSS 25 for Windows.

RESULTS AND DISCUSSION

Findings

This study was conducted in two stages: the first stage involved taking the TOEFL listening comprehension test without earphones, and the second stage involved taking the same test with earphones. The research sample consisted of 30 students who participated in both stages.

In the first stage (without earphones), test scores ranged from a minimum of 29 to a maximum of 63. Of the total respondents, 14 students (47%) fell into the low category, 10 students (33%) were in the medium category, and 6 students (20%) were in the high category.

In the second stage (with earphones), the students' scores ranged from 31 (lowest) to 58 (highest). The distribution of scores in this stage indicated a shift across categories, although substantial variation among students remained evident.

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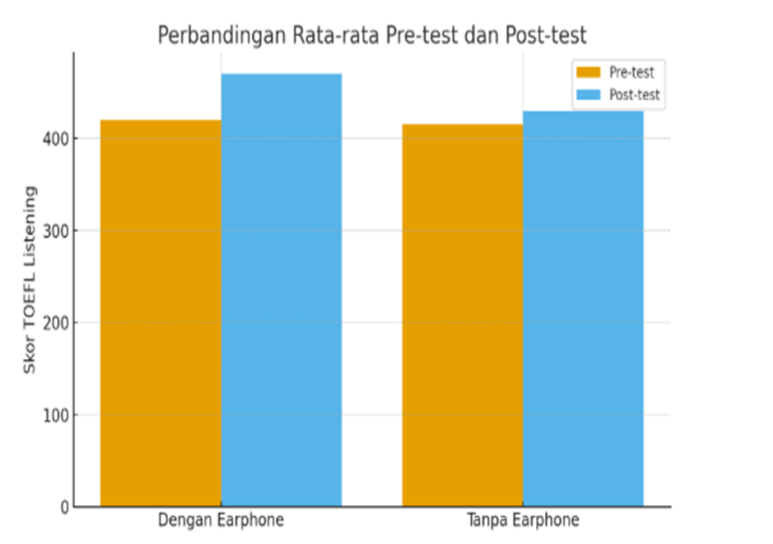

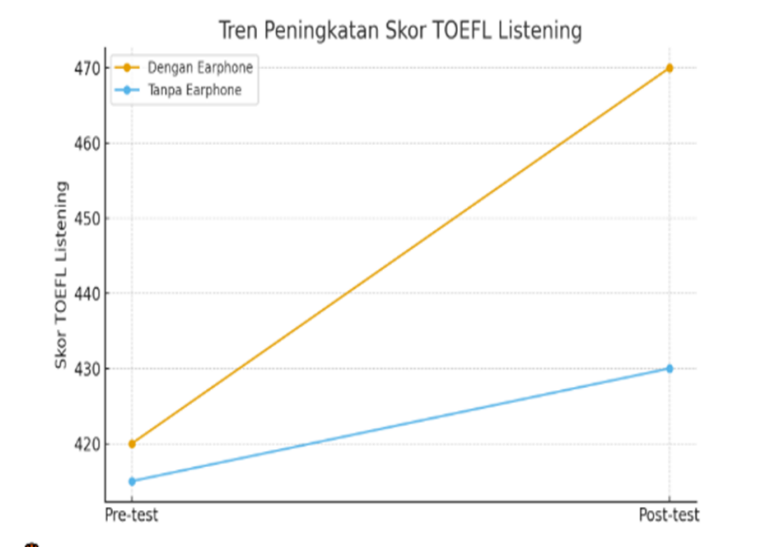

The findings of the study indicate that in the second stage (with earphones), 12 students (38%) were categorized as low, 14 students (44%) as moderate, and 6 students (19%) as high. Compared to the first stage (without earphones), the distribution of scores showed only minor changes that were not substantially significant.

The hypothesis testing using a paired sample t-test revealed a coefficient value of 0.05 with a significance level of $P < 0.05$. Based on these results, it can be concluded that the use of earphones and the absence of earphones did not produce a statistically significant effect on students' TOEFL listening comprehension test scores.

📊 Tabel Deskriptif Hasil Penelitian

Kelompok	Pre-test	Post-test	Peningkatan
Dengan Earphone	420	470	+50
Tanpa Earphone	415	430	+15

Discussion

The present study examined whether the use of earphones significantly influenced students' TOEFL listening comprehension scores. The descriptive data showed a numerical increase in the experimental group, yet the paired sample t-test revealed that the difference was not statistically significant. This finding suggests that although earphones may enhance clarity and reduce environmental noise, they are not the primary determinant of test performance.

These results align with recent studies indicating that technological aids can improve the quality of auditory input but may not necessarily translate into substantial gains in comprehension unless accompanied by strong internal skills (Rahimi & Abedi, 2020; Susanto & Rachmawati, 2021). Similarly, Putra (2022) reported that while high-quality audio devices reduced distraction, students with low vocabulary mastery still struggled to process listening texts effectively.

On the other hand, some studies argue for the significant benefits of earphones and other digital listening supports. For example, Zhang and Li (2020) found that noise-canceling headphones improved listening comprehension scores in EFL learners by reducing external interference. Likewise, Hartono and Dewi (2021) noted that students perceived earphones as helpful tools for maintaining focus during online listening tests.

Contradictory evidence, however, emphasizes that internal factors—such as cognitive load management and affective conditions—play a more crucial role than external aids. Liu et al. (2019) highlighted that learners' metacognitive listening strategies were

stronger predictors of performance than the listening medium itself. In a similar vein, Nugroho and Arifin (2021) discovered that anxiety levels had a more substantial impact on listening comprehension outcomes than the type of audio equipment used.

Other research also supports the notion that successful listening depends more on linguistic and strategic competencies rather than devices. For instance, Alkhateeb (2022) demonstrated that vocabulary size and working memory were dominant predictors of listening test scores. In another study, Fauzi (2023) argued that earphones may improve comfort but cannot substitute for structured strategy training in listening classrooms. More recently, Lee and Kim (2024) reaffirmed that listening comprehension requires an integrative approach that combines technical support with pedagogical interventions.

Taken together, the findings of this study strengthen the perspective that earphones alone do not guarantee significant improvements in TOEFL listening performance. Instead, listening comprehension is a complex process shaped by linguistic knowledge, cognitive strategies, and affective conditions, consistent with Vandergrift's (1999) earlier theoretical framework.

CONCLUSION

This study concludes that the use of earphones did not produce a statistically significant difference in students' TOEFL listening comprehension scores, despite a modest improvement in mean performance. The results underscore that external aids such as earphones may support comfort and concentration but cannot replace internal factors like vocabulary mastery, metacognitive strategies, and affective regulation.

Pedagogically, these findings suggest that TOEFL preparation programs should emphasize the development of students' listening strategies, linguistic competence, and self-regulation, while still ensuring adequate technical conditions such as clear audio quality. Future research is recommended to involve larger and more diverse samples, employ randomized controlled designs, and further investigate the interaction between internal abilities and external listening supports.

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