

The Effectiveness Application of *ESL-LAB* as A Media to Improve Students' Listening Skill

Nizma Efriza Amalia¹, Ina Rohiyatussakinah², Hendra³

^{1,2,3} English Education, Universitas Banten Jaya, Indonesia

Submission Track:

Received: March 01, 2026

Final Revision: March 28, 2026

Available Online: June 30, 2026

Keywords:

ESL-LAB, Media, Listening Skill

*Corresponding Author:

inarohiyatussakinah@unbaja.ac.id

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Abstract: This study aimed to determine the effect of ESL-LAB as media to improve student's listening skill. This research conducted at SMKN 3 Kota Serang. Quasi-experiment with non-equivalent pre-test post-test design was applied in this research. The results of the study were evidenced by the N-Gain results of the experimental class which increased compared to the control class. The first the Paired Samples T-test aim to see that there was a significant effect of the ESL-LAB application as a media to improve students' listening skill. The result was <0.001 , meaning that H_0 rejected and H_a accepted, which means that there was a significant effect of the ESL-LAB application as a media to improve students' listening skill. In the second hypothesis using the Independent Samples T-test which states that the sig value in this study was <0.001 which indicates that H_0 rejected and H_a accepted which means that there were differences in the use of ESL-LAB as a media to improve students' listening skill. It could be concluded that the use of ESL-LAB could improve students' listening skill after using ESL-LAB and there was a significant effect on tenth grade at SMKN 3 Kota Serang.



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INTRODUCTION

Many students experience difficulties in the learning process, especially if the student has not learned English since childhood and rarely uses English in everyday life (Batubara & Wulansari, 2023). Difficulties in mastering listening comprehension were also external factors that affect listeners' performance in terms of understanding what is heard. External factors include the length of the passage, the information content and redundancy, the speaker's accent, culturally specific idioms and language, relevant content, and speaking speed.

The emphasis placed on writing, reading and vocabulary in universities and schools means that students struggle greatly with listening comprehension. (Chaikovska, 2022). Similar as what was said by (Putri et al., 2018) states that having good listening skill is not easy for Students struggle to understand listening materials in senior high school, especially students in tenth grade. This is due to several factors, including students' lack of knowledge and experience of the subject matter, which makes it difficult to interpret the language students hear. In addition, the lack of resources and facilities to teach listening could lead to listening subjects being neglected in the learning process. That is why teachers should improve positive attitude towards listening comprehension and use appropriate strategies to develop students' listening ability.

English teachers must use a variety of techniques to improve language

acquisition and remove the constraints of traditional time-consuming language learning methods. Language learning has greatly benefited from the advancement of ICT. This provides many advantages specific to learning English, in addition to general learning benefits. ICT resources can be of great help in language development. Multimedia elements such as text, music, graphics, animation, sound effects and video can enhance language learning and encourage collaboration. If integrated and used well, ICT tools can offer a powerful platform for improving the language proficiency of second language learners (Rekha, 2021).

In a study conducted by (Abdulrahman et al., 2018) showed good results after students were given podcasts. The research concluded that students' listening comprehension was significantly affected by podcasts, as responses to the questionnaire showed that students were generally in support of using podcasts in listening lessons. The students considered that listening to podcasts offered real content, interesting activities (such as the listening exercises), and meaningful tasks, which increased their motivation to learn English.

Furthermore, based on triangulated data from observation practices conducted by (Saputra, 2018), during the classroom listening activities, students showed great enthusiasm, activity and curiosity. Likewise, judging from the interviews, the students stated that the students experienced an encouraging, autonomous and supportive learning situation. According to some students, the lessons became livelier and less boring because it allowed students to examine the things the students had chosen. This allowed students to learn in a private setting. The students also mentioned in several statements that they benefited greatly from learning new words and dialects of the language. This means that during the learning process, students can also use online resources for listening exercises (such as TED and YouTube) to research English difficulties globally. This could be another topic worthy of further research.

Various studies have shown that with the utilization of technological innovation and Internet innovation, listening skill can be demonstrated more productively. For example, a research study conducted by (Gobena, 2022) states that language learners and teachers in general should be motivated to better understand the effects of using technology-based listening materials. Technology can benefit both teachers and students when used in language teaching. In addition, the teachers should also provide positive learning experiences to their students as consistent use of new technologies tends to increase productivity.

Therefore, the author was interested in using ESL-LAB as a media to improve students' listening skill, ESL-LAB was web-based learning. In ESL-LAB, students can choose the level in working on listening questions. Because in this web there were 3 levels that can be used, namely easy, intermediate, and difficult. However, in this study, the authors conducted a trial at the easy level, because in this study students were still unfamiliar with the media used and because this research was conducted at a tenth-grade vocational high school.

Based on pre-observation at SMKN 3 Kota Serang, listening lessons were rarely taught due to time constraints. Thus, students only receive a few listening lessons. Therefore, the value obtained from listening lessons is less than optimal. Especially with teachers who rarely introduce media for listening learning. Students were also not excited during learning due to limited vocabulary. Media also affects this listening learning. Because if not using the media students look not excited. When the author used media when learning Listening, students look more excited when

learning.

Therefore, there were problems in learning listening, namely the teacher has not introduced media for listening learning, students were less motivated to practice listening, students feel bored in learning, students lack vocabulary, and students lack mastery of listening material. The right teaching technique is needed to overcome these problems. The objectives in this study were to determine the effect of ESL-LAB as media to improve listening skill at tenth grade students in SMKN 3 Kota Serang.

According to (Macamara, 2019) states that listening has long been recognized as an important part of communication along with speaking. When listening is examined, it is mostly in relation to interpersonal communication, interpersonal communication in couples or small groups. listening is important, significant and arguably informative in relation to issues in contemporary society that the following analysis shows that listening is under-studied and often lacking in the context of communication within and by organizations in society.

Listening skill requires hypothesizing, predicting, generalizing, revising, and checking the input heard. Students should prepare themselves well before listening (Nguyen, 2022). Most students face some problems in listening because they cannot understand what the speaker is saying. English learners need to pay attention while learning to listen and try to understand the content. The learners should pay attention to the related factors to improve their ability. Unlike reading, while readers can return to the text anytime, student want, listeners do not have the opportunity to return to the parts student skip. Thus, learners demand to improve their listening skill and there is no denying the importance of listening

THEORETICAL SUPPORT

Foundation for speaking in a foreign language. Students acquire knowledge of the phonology, lexis, grammar, semantics and discourse structure of the target language by listening. It is estimated that almost half of the time students spend learning a foreign language is spent listening. (Deregözü, 2021).

Based on the theory of listening above, listening can be defined as the ability to understand the meaning of spoken words. When students listen, they detect the sound or speech of what the speaker is saying and apply the knowledge they already have to understand what they hear, and ultimately the understanding is produced as a result of the listening process. Most individuals listen to confirm their expectations or to gain more information, whether detailed or specialized. According to (Gu, 2018) states that "When listening, the listener engages processes that are both "bottom-up" and "top-down" in nature. Proficient listeners use both to achieve efficient language comprehension, and the capacity to combine data obtained from both is an essential component of good listening." Putting together the pieces of information heard sequentially, one by one, in the correct order, is known as bottom-up processing. 'Listener as recorder' is often considered a comprehensive and accurate description of effective listening. However, there are certain cases where top-down and bottom-up processing are not appropriate. This process starts from the whole and goes down to individual parts, emphasizing the interpretation of meaning rather than the identification of sounds, words and sentences. When processing information top-down, the listener uses prior knowledge to interpret what is about to be heard.

Listening types are divided into 4, namely intensive, selective, interactive, and extensive. From the types of listening, ESL-LAB falls into the selective type category. Because ESL-LAB is a media that provides voices that are having conversations, some

are describing something or telling stories. Thus, that students will later answer according to what students have heard. Because in this selective type aims to how the suitability of students in answering questions with information heard by students.

Theoretical support or literature review represents the theoretical core of an article. The purpose of a literature review is to “look again” at what other researchers have done regarding a specific topic (Gilmore, 2015). A literature review is a means to an end, namely to provide background to and serve as motivation for the objectives and hypotheses that guide your own research (Johnson, 2019)

A good literature review does not merely summarize relevant previous research. In the literature review, the researcher critically evaluates, re-organizes and synthesizes the work of others (Brown et al., 2018). Advantages or advantages of using ESL-LAB in teaching listening, of course there are also disadvantages to ESL-LAB. This was also found by the author when using ESL-LAB. The author was unable to download the material in ESL-LAB. Because there was no download feature in ESL-LAB. ESL-LAB has full authority with the material and cannot provide copyright for researchers to use the material. This site is not available for offline use by users (Fatih, 2022).

METHOD

This study conducted at SMKN 3 Kota Serang, which is located at Jl. Kimara No.1, Walantaka, Serang. This research employed a quantitative approach using a quasi-experimental design with a non-equivalent pre-test and post-test control group design. The quasi-experimental plan is depicted in the following table:

Table 1. A non-equivalent pre-test and post-test control group design

Class	Pre-Test	Treatment	Post-Test
Experiment	Y1	X	Y2
Control	Y1	-	Y2

Data collection refers to the methods and instruments used in research to collect data. In this study, the author used a test instrument consisting of pre-test and post-test. The type of test used was multiple choice with the number of tests used were ten questions. Each item has 10 points, and if all were correct get 100 points. The level of difficulty in the pre-test and post-test of this study was the same, nothing was difficult or easy. Documentation in quantitative research is one of the approaches used in research to collect data systematically and accurately. This method involves collecting data through observing, measuring, and recording every detail relevant to the research objectives.

To determine whether the instrument used can be used or not, it is necessary to conduct a validity test first in order to provide measurements that are relevant to the investigation. To know the validity of the test, the author used *Pearson Product Moment* formula:

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{(N\sum X^2 - (\sum X)^2)(N\sum Y^2 - (\sum Y)^2)}}$$

For data processing techniques in this study using N-Gain. N-Gain is a test used to measure the effectiveness of a treatment in the form of a method or media in the

classroom, using an initial test and a final test in the experimental or control group. Normalized Gain, often known as N-Gain, is calculated as the difference between test scores before and after treatment. N-Gain is calculated as the difference between pre-test and post-test scores. The difference between the pre-test and post-test can be used to determine whether or not the treatment is effective, as well as the level of effectiveness (Handayani & Nurlaily, 2024). To calculate the N-Gain score, the author used the formula below:

$$N\text{-Gain} = \frac{\text{Posttest Score} - \text{Pretest Score}}{\text{Ideal Score} - \text{Pretest Score}}$$

To test the hypothesis, the author used Paired Samples T-test to compare two sets of values for the same group of students then Independent Samples T-test to see the significance of the two classes Through SPSS version 29.

In this study, the authors used multiple choice as pre-test and post-test. To determine the score to be assessed, the author uses the following rubric:

Table 2. Scoring Rubric

No.	Score	Classification
1.	100 – 81	Very Good
2.	80 – 61	Good
3.	60 – 41	Enough
4.	40 – 21	Poor
5.	1 – 20	Very Poor

(Islamuddin, 2019)

Data were collected using multiple-choice pre-tests and post-tests consisting of ten questions. Instrument validity was tested using the Pearson Product Moment correlation, while reliability was measured using Cronbach's Alpha. Data analysis included N-Gain analysis, Shapiro-Wilk normality test, Levene's homogeneity test, Paired Samples T-test, and Independent Samples T-test using SPSS version 29.

RESULT AND DISCUSSION

This study used tests to collect data, the author used pre-tests, and post-tests to collect data from student scores. The author has given pre-tests to students to determine students' listening skill before the author give treatment to students. And also, the author gave a post-test to find out the improvement between the pre-test and post-test and compared by the author.

Table 3. Score Pre-test and Post-test of Experimental Class

N=36	Pre-Test	Post-Test
No		
MIN	10	40
MAX	70	90
MEAN	36,39	66,94

In the table above, the pre-test score in the experimental class obtained the highest score of 70 and the lowest score of 10. Furthermore, for the post-test the experimental

class obtained the highest score of 90 and the lowest score of 40. And it could be seen from the average score obtained in the experimental class that there was a big difference.

Table 4. Score Pre-test and Post-test of Control Class

N=36	Pre-Test	Post-Test
No		
MIN	10	20
MAX	70	80
MEAN	40,28	53,33

In the table above, the pre-test score in the control class obtained the highest score of 70 and the lowest score of 10. Furthermore, for the post-test the control class obtained the highest score of 80 and the lowest score of 20. In the pre-test the control and experimental classes have the same lowest and highest scores. However, in the post-test the control class did not improve as much as the experimental class. It can be seen from the average score obtained by the control class. Therefore, the experimental class experienced a high increase compared to the control class because it was given treatment.

The N-Gain results also support that the experimental class is superior to the control class. Because the average in the experimental class is 0.48, while the control class is 0.21. This research is carried out to find out whether the data that has been collected and researched is normally distributed or not. The result of normality test is presented below:

Table 5. Normality Test

Class	<i>Shapiro-Wilk</i>		
	<i>Statistic</i>	<i>Df</i>	<i>Sig.</i>
Pre-Test Experiment Class	.954	36	.147
Pre-Test Control Class	.956	36	.157
Post-Test Experiment Class	.941	36	.054
Post-Test Control Class	.950	36	.108
N-Gain Experiment Class	.953	36	.133
N-Gain Control Class	.941	36	.054

Based on the table above, the normality test of the experimental class is significant. The significance of the experimental class pre-test was 0.147, it can be stated that the pre-test was significant because the result was greater than 5% ($\alpha = 0.05$) which means $0.147 > 0.05$. The post-test results are also significant because $0.054 > 0.05$. The control class pre-test result is 0.157, this also means significant because $0.157 > 0.05$. The control class post-test result was 0.108 and the result is greater than 0.05 which means significant because $0.108 > 0.05$. N-Gain results in the experimental class are significant because $0.133 > 0.05$. And the control class is also significant because $0.054 > 0.05$.

The homogeneity test was conducted to find out whether the data obtained has a

homogeneous variance or not. The result of the homogeneity test is presented below:

Table 6. Homogeneity Test

Class	<i>Levene Statistic</i>	<i>df1</i>	<i>df2</i>	<i>Sig.</i>
Pre- test	.006	1	70	.940
Post- test	.057	1	70	.812
N- Gain	3.188	1	70	.079

Based on the table above, the homogeneity test of the pre-test was significant. The significance of the pretest was 0.940, it can be stated that the pre-test was significant because the result was greater than 5% ($\alpha = 0.05$) which means $0.940 > 0.05$. The post-test results are also significant because $0.812 > 0.05$. N-Gain results are significant because $0.079 > 0.05$. because the result of the sig value is <0.01 which indicates that H_0 rejected and H_a accepted. Which means there was a difference by using ESL-LAB as a media to improve students listening skill.

Listening for students was a challenge for some students. Especially when they are faced with several conditions, such as limited facilities such as learning media, limited time for English subjects, uninteresting and undeveloped teacher materials, and student factors such as difficulty understanding the material and lack of vocabulary. The findings of this study reveal that using ESL-LAB can overcome the problems mentioned above. This can be proven by the N-Gain results where the experimental class has increased compared to the control class, with the results of the criteria obtained being moderate, while the control class has decreased by getting low criteria results. In the hypothesis results the author uses 2 hypotheses. The first used the Paired Samples T-test aimed to see that there was a significant effect of the application ESL-LAB as a media to improve students' listening skill. The result is H_0 rejected and H_a accepted because the two-sided sig must show <0.05 and the results show <0.001 which means there was a significant effect of the application ESL-LAB as a media to improve students' listening skill.

In the second hypothesis using the Independent Samples T-test which states that, the two-sided sig value <0.05 , meaning that the value in the hypothesis must be less than 0.05, because if it was more than 0.05 then the results were not significant. The sig value in this study was <0.001 which indicates that H_0 rejected and H_a accepted which means there was difference by using ESL-LAB as a media to improve students listening skill

According to Nguyen (2022) which explains that Students should prepare themselves well before listening. Experimental class that the class that gets treatment has a significant increase. This is also similar to the research conducted by Jaber & Iyada (2019) who stated that experienced a great effect after using ESL-LAB as media on listening skill.

Therefore, the use of ESL-LAB as a media for listening is very effective. Like the research conducted by Chaikovska (2022) stated that by using ESL-LAB students can obtain significant results. By using ESL-LAB, students can improve their listening skill. many students have the desire to improve their listening skill by using various foreign language resources online after using ESL-LAB.

It can be seen that using learning technology in listening can increase as in research by Gobena (2022) Language learners and teachers in general should be motivated to better understand the effects of using technology-based listening materials. Technology can be helpful for both teachers and students when used in language teaching.

The findings indicate that students taught using ESL-LAB achieved higher listening scores than those taught using conventional methods. The experimental class improved from a mean pre-test score of 36.39 to a post-test mean score of 66.94, while the control class improved from 40.28 to 53.33. The average N-Gain score of the experimental class (0.48) was higher than the control class (0.21), indicating a moderate level of improvement. Normality and homogeneity tests confirmed that all data met the assumptions for parametric analysis. The Paired Samples T-test produced a significance value of <0.001 , indicating a significant improvement in students' listening skills after using ESL-LAB. Furthermore, the Independent Samples T-test also resulted in <0.001 , demonstrating a significant difference between the experimental and control groups.

These findings support previous studies suggesting that technology-based learning media improve students' motivation and listening comprehension. ESL-LAB provides authentic listening materials, interactive exercises, and independent learning opportunities that contribute to students' listening achievement. Overall, ESL-LAB proved to be an effective instructional medium for improving listening skills among tenth-grade vocational high school students.

Table 7. Students' Listening Achievement in Experimental and Control Classes

Class	Pre-test Mean	Post-test Mean	N-Gain	Category
Experimental	36.39	66.94	0.48	Moderate
Control	40.28	53.33	0.21	Low

Based on pre-test, post-test, and N-Gain results.

Table 7 presents the comparison of students' listening achievement between the experimental class and the control class based on the pre-test mean, post-test mean, and N-Gain score. The experimental class obtained a pre-test mean score of 36.39, which increased to 66.94 in the post-test, resulting in an N-Gain score of 0.48, categorized as moderate improvement. Meanwhile, the control class improved from a pre-test mean score of 40.28 to a post-test mean score of 53.33, with an N-Gain score of 0.21, categorized as low improvement. These findings indicate that students who learned using ESL-LAB demonstrated greater improvement in listening achievement than those who learned through conventional teaching methods.

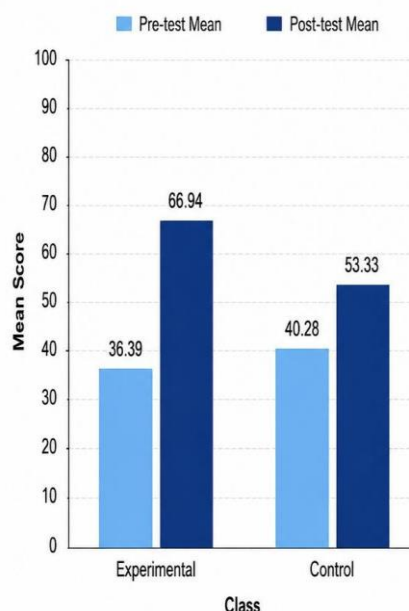


Figure 1. Comparison of Pre-test and Post-test Mean Scores of Experimental and Control Classes

Figure 1 illustrates the comparison of the pre-test and post-test mean scores between the experimental and control classes. The experimental class showed a substantial increase from 36.39 to 66.94, indicating an improvement of 30.55 points after receiving instruction through ESL-LAB. In comparison, the control class improved from 40.28 to 53.33, representing an increase of 13.05 points. The larger increase in the experimental class demonstrates that the implementation of ESL-LAB contributed more effectively to improving students' listening skills than the conventional learning method.

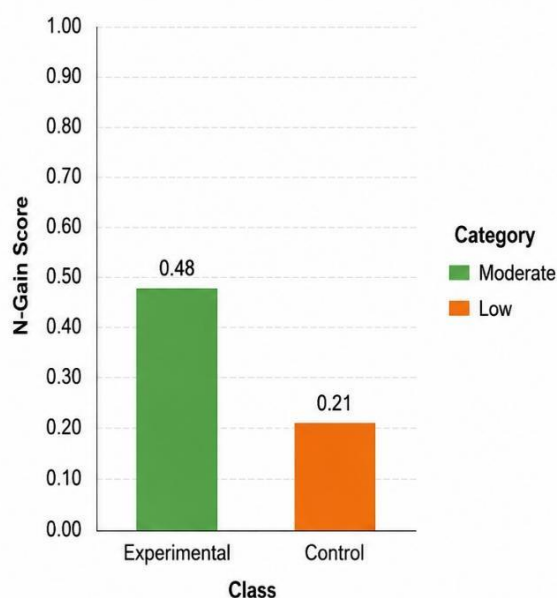


Figure 2. Comparison of N-Gain Scores between Experimental and Control Classes

Figure 2 presents the comparison of N-Gain scores obtained by the experimental and control classes. The experimental class achieved an N-Gain score of 0.48, which

falls into the moderate improvement category, whereas the control class obtained an N-Gain score of 0.21, categorized as low improvement. The higher N-Gain score in the experimental class indicates that ESL-LAB provided a greater contribution to students' listening skill improvement. Therefore, the use of ESL-LAB can be considered more effective than conventional instruction in enhancing students' listening achievement.

Table 8. Summary of Hypothesis Testing

Statistical Test	Sig. Value	Decision
Paired Samples T-test	<0.001	H_0 Rejected
Independent Samples T-test	<0.001	H_0 Rejected
Based on pre-test, post-test, and N-Gain results.		

Table 8 presents the results of the hypothesis testing using the Paired Samples T-test and Independent Samples T-test. Both statistical tests produced a significance value of <0.001, which is lower than the significance level of 0.05. Therefore, H_0 was rejected and H_a was accepted for both tests. The Paired Samples T-test indicates that there was a significant difference between students' pre-test and post-test scores after using ESL-LAB in the experimental class. Meanwhile, the Independent Samples T-test demonstrates a significant difference between the experimental class and the control class after the treatment. These findings confirm that the application of ESL-LAB had a significant effect on improving students' listening skills.

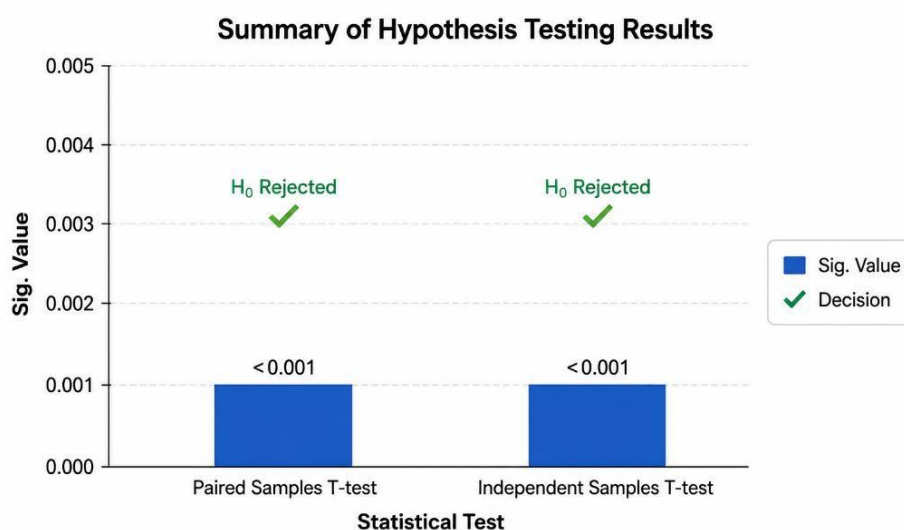


Figure 3. Comparison of N-Gain Scores between Experimental and Control Classes

Figure 3 illustrates the results of the hypothesis testing conducted in this study. Both the Paired Samples T-test and the Independent Samples T-test obtained significance values of <0.001, indicating that the results were statistically significant. Since the significance values were lower than 0.05, the null hypothesis (H_0) was rejected for both tests. These results indicate that there was a significant improvement in students' listening skills after learning through ESL-LAB and that the experimental class performed significantly better than the control class. Thus, the statistical analysis supports the effectiveness of ESL-LAB as a learning medium to improve students' listening skills.

CONCLUSION

The conclusion of this study was that ESL-LAB was effective for improving the

listening skill of tenth grade students of SMKN 3 Kota Serang. This could be proven by the N-Gain results where the experimental class has increased compared to the control class, with the results of the criteria obtained being medium, while the control class has decreased by getting low criteria results. In the hypothesis results the author uses 2 hypotheses. The first used the Paired Samples T-test aimed to see that there was a significant difference between the average pre-test and post-test scores. The result H_0 rejected and H_a accepted because the two-sided sig must show <0.05 and the results show <0.001 which means there was a significant effect of the application ESL-LAB as a media to improve students' listening skill.

In the second hypothesis using the Independent Samples T-test which states that, the two-sided sig value <0.05 , meaning that the value in the hypothesis must be less than 0.05, because if it was more than 0.05 then the result was not significant. The sig value in this study was <0.001 which indicates that H_0 rejected and H_a accepted which means there was a difference by using ESL-LAB as a media to improve students' listening skill. It could be concluded that the use of ESL-LAB to improve students listening skill produces differences after using ESL-LAB and there was a significant effect on tenth grade at SMKN 3 Kota Serang. It could be demonstrated that ESL-LAB is an effective web-based learning medium for improving students' listening skills. Students who learned through ESL-LAB achieved significantly higher post-test scores and N-Gain values than those taught using conventional methods. Statistical analysis confirmed significant differences within the experimental group and between the experimental and control groups. Therefore, ESL-LAB can be recommended as an alternative instructional medium to enhance listening comprehension in English language learning. Future studies are encouraged to investigate the effectiveness of ESL-LAB with different educational levels, language skills, or larger sample sizes.

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