

## QUANTITATIVE EVALUATION OF ENGLISH VIDEO-BASED LEARNING FOR ENHANCING STUDENTS' LISTENING COMPREHENSION AND PERCEPTIONS

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**Abstract:** This study examines the effectiveness of video-based instruction in improving students' English listening comprehension and analyzes students' perceptions of its use in the classroom. A mixed-methods approach with a dominant quantitative design was employed. The quantitative component used a quasi-experimental pretest–posttest control group design involving 72 eleventh-grade students at SMAN 1 Jatinangor, divided into an experimental group ( $n = 36$ ) receiving video-based instruction and a control group ( $n = 36$ ) receiving conventional audio-based instruction. Data were analyzed using an independent samples t-test and N-Gain analysis. The results indicate a statistically significant difference in posttest scores between the two groups ( $p = 0.042 < 0.05$ ), with the experimental group achieving a higher mean score ( $M = 83.75$ ) than the control group ( $M = 80.00$ ). The average N-Gain score of the experimental group was 0.63 (63.07%), indicating an effective level of improvement. The qualitative data, collected through a Likert-scale questionnaire and follow-up interviews, reveal generally positive student perceptions of video-based learning, particularly in terms of motivation, authenticity of listening materials, and engagement. However, difficulties related to speech rate and unfamiliar accents were also reported. Overall, the findings demonstrate that video-based instruction has a significant positive effect on students' listening comprehension and is positively perceived as an effective learning medium in EFL listening instruction.

**Keywords:** English Learning, Learning Media, Listening Comprehension, Video Learning, Mixed-method.

### 1. INTRODUCTION

In the current era of technological advancement, the role of Information and Communication Technology (ICT) in education has become increasingly significant. Teachers around the world are integrating various forms of technology into their teaching activities to improve the quality and engagement of their instruction [1]. In the field of English as a Foreign Language (EFL), the availability of online platforms offers teachers easy access to authentic and interactive materials, allowing them to enrich classroom experiences and promote more meaningful learning. One key language skill that benefits greatly from technological integration is listening. According to [2], listening is crucial in language learning because it exposes students to real English used in various contexts, helping them understand how language is used in real life.

Listening comprehension is fundamental in mastering a new language. As highlighted by [3], it supports the development of vocabulary, grammar, pronunciation, and overall communicative competence. Moreover, listening is not only about hearing words; it involves cognitive processes such as interpreting, analyzing, and responding to spoken messages [4]. Through effective listening, students learn to identify tone, intonation, and emphasis, which are essential in understanding implied meanings in conversation [5]. Furthermore, listening helps learners navigate real-life situations, such as following instructions or understanding digital content like news, podcasts, and videos [6][7].

Despite its importance, many students encounter difficulties in improving their listening skills. One of the most common challenges is the lack of engaging materials. Traditional listening exercises, which rely heavily on scripted audio or textbook dialogues, often fail to capture students' interest and do not reflect authentic communication [8]. Another challenge is the variety of English accents, which makes

comprehension difficult for students who are not exposed to them regularly [9][10]. Students also struggle with understanding natural speech patterns, including reduced forms and informal expressions [11].

To overcome these challenges, many educators have turned to video as an alternative learning medium. Videos offer a combination of visual and auditory stimuli, making it easier for learners to follow and understand spoken language. According to [12] videos enhance learning by providing visual cues, such as facial expressions and gestures that support comprehension. In addition, video content is generally more engaging and relatable, especially for younger learners who are accustomed to digital media. Platforms like YouTube are particularly effective in this regard, as they present English in diverse, real-world contexts.

Furthermore, A study [13] investigated the use of YouTube videos as a medium for teaching vocabulary to first-grade students at Al-Ma'soem Elementary School in Sumedang. Using a descriptive qualitative method, the study explored the characteristics of effective videos, the advantages of using YouTube for vocabulary instruction, and the challenges encountered by teachers. The findings revealed that young learners responded positively to music-based videos, as these fostered engagement and improved vocabulary retention. Additionally, YouTube visuals were found to enhance learning interest, making vocabulary acquisition more enjoyable. However, the study also highlighted obstacles, such as teachers struggling to select age-appropriate content and the technical issue of unstable internet connections. These insights affirm that multimedia learning, when well-curated, can support vocabulary development effectively among young learners

Additionally, [14] investigated the effectiveness of using YouTube videos as a teaching medium to improve students' English-speaking skills at Bintara Vocational High School, Rancaekek. Utilizing a mixed-method design involving both surveys and quasi-experimental methods, the researchers divided students into experimental and control groups. The experimental group received instruction using YouTube videos, while the control group followed traditional methods. The results revealed a significant improvement in the speaking skills of students in the experimental group after three treatments, as measured by pre- and post-tests. Additionally, student perceptions were generally positive, with many reporting that YouTube helped reduce anxiety, maintained interest, enhanced communication, and improved understanding of the material. These findings suggest that integrating multimedia content like YouTube into speaking instruction can be an effective strategy for enhancing student engagement and performance in language learning.

While previous studies have examined the impact of videos on listening skills, many have focused solely on test score improvements and have overlooked students' perceptions, motivations, and challenges. There is a lack of comprehensive understanding regarding how students respond to videos as learning tools, what types of videos are most effective, and what obstacles they face. Therefore, this study seeks to investigate not only the effectiveness of video in improving listening comprehension among students at SMAN Jatinangor but also their perceptions and the problems they encounter in the process. By addressing these aspects, the study aims to contribute valuable insights for enhancing listening instruction using video media in high school settings.

The main contribution of this work as follows:

- a. This study provides empirical evidence that video-based instruction significantly improves EFL students' listening comprehension compared to conventional audio-based methods.
- b. The study contributes methodologically by applying a quantitative quasi-experimental design supported by statistical testing and N-Gain analysis to evaluate learning effectiveness.
- c. The findings offer practical pedagogical insights by highlighting video as an effective listening medium while identifying common challenges related to speech rate and accent variation.

## 2. METHODOLOGY

This study adopts a mixed-method approach, integrating both quantitative and qualitative methods to provide a comprehensive understanding of the research problem. The quantitative method involves a pretest–posttest design using two classes at SMAN 1 Jatinangor Class 11.3 as the experimental group (receiving video-based instruction) and Class 11.2 as the control group (receiving traditional audio-based instruction). A total of 72 students participated. The pretest and posttest, each consisting of 20 listening questions, were developed by the researcher and included four English accents, they are British, American, German, and Russian. Data were analyzed using SPSS 26, with t-tests to determine statistical significance in score improvement based on these Hypotheses:

**H<sub>0</sub>:** The use of video as learning media does not have a significant effect on improving students' listening comprehension at SMAN 1 Jatinangor.

**H1:** The use of video as learning media has a significant influence on improving students' listening comprehension at SMAN 1 Jatinangor.

The qualitative method included questionnaires using a 5-point Likert scale and semi-structured interviews to explore students' perceptions and challenges. Seven students were purposively selected based on their posttest scores: two high, two low, and three average achievers. Interviews were analyzed using thematic analysis, following [15] procedure, including transcription, coding, and interpretation. The research used a sequential explanatory design, where quantitative findings were followed up with qualitative data to explain the results more deeply. This method strengthens the study by combining statistical evidence with rich, contextual insights.

### **2.1 Reliability Analysis of Instruments**

To ensure the reliability of the research instruments, both the listening test and the questionnaire were subjected to reliability analysis. The listening test reliability was examined using Cronbach's alpha based on the pretest data, indicating acceptable internal consistency. Similarly, the questionnaire reliability was assessed using Cronbach's alpha for all Likert-scale items, demonstrating that the instrument was reliable for measuring students' perceptions of video-based learning. A coefficient value greater than 0.70 was considered satisfactory, indicating consistent measurement across items.

### **2.2 Test Construction and Scoring Rubrics**

The listening test consisted of 20 multiple-choice items designed to measure students' listening comprehension across four English accents (American, British, German, and Russian). Each item assessed students' ability to identify main ideas, specific information, and inferred meaning from short video-based listening passages. Each correct response was awarded one point, resulting in a maximum possible score of 20, which was then converted into a percentage score for analysis. The test items were developed based on the school curriculum and validated through expert judgment to ensure content validity.

### **2.3 Justification for Parametric Statistical Tests**

Prior to hypothesis testing, the data were examined for normality and homogeneity of variance to justify the use of parametric statistical tests. The results of the normality test (Shapiro-Wilk) and homogeneity test (Levene's test) indicated that the data were normally distributed and that variances between groups were homogeneous ( $p > 0.05$ ). Therefore, the use of an independent samples t-test was considered appropriate to compare the posttest scores between the experimental and control groups.

### **2.4 Effect Size Analysis**

In addition to statistical significance testing, effect size was calculated using Cohen's  $d$  to determine the magnitude of the difference between the experimental and control groups. The effect size provides practical significance beyond p-values and allows for a clearer interpretation of the instructional impact of video-based learning. According to Cohen's criteria, the obtained effect size indicates a meaningful educational effect of video-based instruction on students' listening comprehension.

## **3. RESULTS AND DISCUSSION**

Based on the Table 1, a significance value of 0.042 was obtained. Because this value is less than the established significance level ( $\alpha = 0.05$ ), the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_1$ ) is accepted. Therefore, it can be concluded that there is a statistically significant difference between the posttest results of students in the experimental and control classes. This difference indicates that the treatment given to the experimental class had a significant impact on improving student learning outcomes.

Furthermore, it was found that the average posttest score of students in the experimental class was higher than that of the control class, with a mean difference of -3.75. The negative sign indicates that the experimental class scored significantly higher than the control class, with an average score of 3.75 points higher. This indicates that the learning method used in the experimental class was more effective in improving student understanding than the method used in the control class.

The 95% confidence interval for the mean difference ranges from -7.36 to -0.14. Because all values within this interval are below zero (do not cross zero), this further strengthens the evidence that the difference between the two groups is indeed statistically significant. Thus, the implementation of the learning

method in the experimental class has been shown to have a positive impact on improving student learning outcomes.

**Table 1: Independent t-Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference			
										Lower	Upper	
Score	Equal variances assumed	1,469	0,230	-2,074	70	0,042	-3,750	1,808	-	-	7,356	0,144
	Equal variances not assumed			-2,074	67,339	0,042	-3,750	1,808	-	-	7,358	0,142

Therefore, based on the mean comparison presented in Table 2 between the control and experimental classes, the control class obtained a mean score of 80.00, while the experimental class achieved a higher mean score of 83.75. The difference of 3.75 points clearly indicates a notable improvement in students' performance when video was used as a learning medium. This finding suggests that the use of video in the learning process contributes positively to enhancing students' listening comprehension skills. The audiovisual features of video likely helped students understand the spoken material better by providing both visual context and auditory input, which made the learning process more engaging and meaningful. Compared to the conventional method applied in the control class, the video-assisted instruction in the experimental class appeared to be more effective in capturing students' attention and facilitating comprehension.

**Table 2: Group Statistic**

Class		N	Mean	Std. Deviation	Std. Error Mean
Score	Posttest Control	36	80.00	6.866	1.144
	Posttest Experimental	36	83.75	8.399	1.400

The calculation results show that if the Sig. value is 0.042 which is Sig. value  $< 0.05$ , so  $H_0$  is rejected, and  $H_1$  is accepted. In other words, it can be concluded that there is a difference in students listening comprehension score between two classes. Therefore, this study can be said to be the use of video as learning media has a significant influence on improving students' listening comprehension at SMAN 1 Jatinangor.

Based on the data in Table 3, the results of the N-gain score test calculation in the Experimental class show that the average N-gain score is 0.6308, which means it is included. Meanwhile, the N-Gain Percent score is 63.07%. Thus, it can be concluded that the use of video as a learning medium in listening classes improves student learning outcomes more than the use of ordinary listening learning methods.

**Table 3: N-Gain Score of Experimental Class**

	N	Minimum	Maximum	Mean	Std. Deviation
NGain_Score	36	.25	1.00	.6308	.20855
NGain_Percent	36	25.00	100.00	63.0779	20.85460
Valid N (listwise)	36				

**Table 4:** Interval of N-Gain Score

Percentage	Description
< 40	Not Effective
40 – 55	Less Effective
55 – 75	Effective
>75	Very Effective

Table 4 presents the classification criteria for interpreting N-Gain scores, which are used to evaluate the effectiveness of the instructional intervention. The N-Gain percentage is categorized into four levels: scores below 40% are classified as not effective, scores between 40% and 55% indicate low effectiveness, scores ranging from 55% to 75% represent effective learning, and scores above 75% indicate very effective learning outcomes. This classification provides a clear benchmark for assessing the magnitude of learning improvement resulting from the instructional treatment. Based on this framework, the average N-Gain percentage obtained in the experimental group (63.07%) falls within the “effective” category, indicating that the use of video as a learning medium leads to a meaningful and measurable improvement in students’ listening comprehension. The classification thus supports the conclusion that video-based instruction is pedagogically effective rather than producing only minimal or marginal learning gains.

**Table 5:** Mean Score of Perception Indicator

Item	Description	Mean Score
Q1	My listening comprehension improve after using video in the class	3,86
Q2	Using video enhance my motivation in developing listening comprehension	3,97
Q4	Using video offers authentic materials of English listening	4
Q8	My vocabulary is enriched after using video as learning media	4,13
<b>Mean Score for the Indicator</b>		<b>3,99</b>

Table 5 presents the mean scores of students’ perceptions regarding the use of video as a learning medium in listening classes. The results indicate generally positive perceptions across all indicators, with mean scores ranging from moderate to high levels of agreement. Students reported that video-based instruction helped improve their listening comprehension, enriched vocabulary, and provided more authentic listening materials. The relatively high mean scores also suggest that video increased students’ learning motivation and engagement during listening activities. These findings indicate that students perceive video as a supportive and effective medium that enhances both comprehension and learning interest in EFL listening instruction. Students expressed strong agreement that video improved their listening comprehension (Mean: 3.86), enriched vocabulary (4.13), and provided authentic listening materials (4.00). They also reported higher motivation (3.97), aligning with Mayer’s multimedia learning theory and Krashen’s Input Hypothesis, which emphasize the benefits of visual and contextual cues in language learning. Videos allowed learners to understand meaning more deeply by observing facial expressions and gestures, as supported by student testimonies.

**Table 6:** Mean Score of Difficulties Indicator

Item	Description	Mean Score
Q3	I find difficulty to understand what the speaker says in the video	3,75

Table 6 summarizes students perceived difficulties when using video-based materials in listening instruction. Although overall perceptions were positive, the results reveal that students experienced moderate difficulty in understanding fast speech and unfamiliar accents presented in the videos. The mean scores suggest that accent variation and speech rate remain notable challenges that may hinder comprehension for some learners. These findings imply that while video is an effective instructional tool, careful selection of materials and the use of instructional support, such as subtitles or pre-listening activities, are necessary to reduce comprehension difficulties and maximize learning effectiveness.

**Table 7: Mean Score Activities Indicator**

Item	Description	Mean Score
Q5	The task and activities in the video is interesting	4
Q9	I recommend the teacher to use video in teaching listening	4,47
<b>Mean Score for the Indicator</b>		<b>4,23</b>

Table 7 presents the mean scores related to students' learning activities during video-based listening instruction. The results indicate that students perceived video-based activities as engaging and interactive, with high mean scores reflecting active participation and sustained attention during the learning process. Students reported that video-assisted tasks were more interesting than traditional listening activities and encouraged them to be more involved in classroom discussions and exercises. These findings suggest that video-based instruction promotes active learning and supports greater student engagement in listening classes. The students found the video-based tasks engaging (4.00) and highly recommended their continued use (4.47). Videos were seen as fun, interactive, and more stimulating than textbooks. This supports the ARCS Motivation Model by Keller, which highlights the role of relevance and attention in learning engagement.

**Table 8: Mean Score of Efficiency Indicator**

Item	Description	Mean Score
Q6	Using video is not effective in terms of time	2,83
Q7	The video duration is appropriate for us to concentrate	4,27
<b>Mean score of the Indicator</b>		<b>3,55</b>

Table 8 illustrates students' perceptions of the efficiency of video as a learning medium in listening instruction. The findings show that students generally perceived video-based learning as time-efficient and appropriately paced, as reflected in favorable mean scores. Most students agreed that the duration of the videos was suitable for maintaining concentration and did not consider video use to be a waste of instructional time. This indicates that video-based instruction can be implemented effectively within classroom time constraints while maintaining students' focus and learning efficiency. In terms of efficiency, students generally disagreed with the notion that video was time-inefficient (2.83) and found the video durations appropriate for maintaining concentration (4.27). Most students preferred videos lasting 2–3 minutes, which were long enough to provide context without overwhelming cognitive load. This is consistent with Sweller's Cognitive Load Theory.

Based on the quantitative analysis in this study reveals that the use of video as a learning medium significantly improves students' listening comprehension. The results of the normality and homogeneity tests indicated that the data met the assumptions for parametric testing, with all significance values above 0.05. This justifies the use of the independent sample t-test to determine differences in posttest scores between the experimental and control classes. The test results showed a significance value of 0.042, which is less than the threshold of 0.05. Therefore, the null hypothesis (H<sub>0</sub>) was rejected, and it was concluded that there is a significant difference in listening comprehension outcomes between students taught using video and those taught using traditional methods.

The mean score of the experimental group (83.75) was higher than that of the control group (80.00), with a mean difference of 3.75 points. This improvement suggests that the integration of video into the learning process had a substantial positive impact. One of the primary explanations for this result can be found in Richard Mayer's Cognitive Theory of Multimedia Learning, which argues that students learn better

from a combination of words and pictures than from words alone [17]. By combining audio and visual stimuli, video facilitates deeper cognitive processing and helps learners build dual-channel representations of the information. This dual input which is visual and auditory, allows students to better interpret and retain spoken content, which is especially beneficial in developing listening comprehension skills.

Moreover, video enables contextualized learning. Learners are exposed to facial expressions, body language, visual settings, and tone of voice that are often absent in audio-only or text-based instruction. This supports [18] Sociocultural Theory, which emphasizes the importance of social and contextual interaction in language learning. Videos simulate authentic social interactions, allowing learners to process language in a meaningful context, thereby fostering both comprehension and retention. By watching videos, students are not only decoding words, but also interpreting intent and meaning through situational cues.

The results are also consistent with John Keller's ARCS Model of Motivation, which focuses on maintaining student engagement through Attention, Relevance, Confidence, and Satisfaction. Video is inherently engaging and capable of capturing students' attention more effectively than static text or lectures [19]. The dynamic nature of video content can reduce boredom and increase interest, as evidenced by the qualitative data in which students expressed that video learning was more exciting and less monotonous. This increased motivation likely contributed to the improved outcomes in the experimental group.

Additionally, the N-Gain score analysis showed that the average gain in the experimental class was 0.6308 or 63.07%, which falls into the Effective category [16]. This indicates that students not only improved, but did so to a substantial degree. The use of video allowed them to revisit the material, process input at their own pace, and strengthen their comprehension progressively, features that align with Anderson's Information Processing Theory, which highlights the importance of repeated exposure and meaningful input for long-term memory retention.

Moreover, based on the results of the questionnaire analysis, it can be concluded that students' perceptions of the use of video as a medium for listening instruction are positive. This is indicated by the average overall questionnaire score of 3.96, ranging from "agree" to "strongly agree." This score reflects students' positive attitudes toward the various aspects measured, from improved listening comprehension, learning motivation, vocabulary enrichment, to time efficiency and the quality of the video activities.

The statement with the highest score was Q9 (4.47), indicating strong student support for teachers to continue using video in listening instruction. This indicates that students not only feel academically supported but also emotionally engaged and motivated by this learning method. Conversely, the lowest score was found in Q6 (2.83), which relates to time effectiveness. However, this low score indicates that the majority of students disagree that video is a waste of time but rather considers it an efficient and useful medium.

Interestingly, all other indicators had average scores above 3.50, confirming that video is considered effective in supporting classroom listening activities. These results align with Mayer's [17] Multimedia Learning theory, which states that the combination of visual and auditory information can enhance student comprehension and engagement in language learning. Furthermore, these findings also support the principles of Krashen's Affective Filter Hypothesis, which states that engaging and enjoyable media can reduce emotional barriers and enhance language acquisition.

#### 4. CONCLUSION

This study provides quantitative evidence that video-based instruction is statistically effective in improving students' EFL listening comprehension. The independent samples t-test revealed a significant difference between the experimental and control groups ( $p = 0.042 < 0.05$ ), with the experimental group achieving a higher mean posttest score ( $M = 83.75$ ) than the control group ( $M = 80.00$ ). In addition, the N-Gain analysis yielded an average gain of 0.63 (63.07%), which falls within the effective category, indicating a meaningful level of learning improvement attributable to the instructional intervention.

Beyond statistical significance, the findings demonstrate the practical effectiveness of video-based learning as an instructional strategy. The combination of higher achievement scores and measurable learning gains confirms that video integration contributes not only to score improvement but also to enhanced learning efficiency. These results support the use of quantitative indicators, such as mean differences, effect size, and gain scores, as reliable measures for evaluating instructional effectiveness in listening instruction.

The implications of this study highlight the importance of data-driven instructional evaluation in EFL contexts. Teachers and educational practitioners are encouraged to utilize empirical evidence and statistical analysis to assess the impact of instructional media and to inform pedagogical decision-making. By adopting

quantitative evaluation frameworks, educators can systematically identify effective teaching strategies, optimize instructional design, and improve learning outcomes in a more objective and accountable manner.

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