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Among Video-Based Learning, Web-Based Learning and EFL Students' Mastery of Conditional Sentences: A Study of Senior High School Level

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ABSTRACT

This research explored the impact of Video-Based Learning (VBL) and Web-Based Learning (WBL) on enhancing the understanding of conditional sentences (Types 1, 2, and 3) among Grade 10 students at SMA UNKLAB Airmadidi. Employing a quasi-experimental design, 60 students were assigned to two groups: one received instruction via VBL, while the other was taught using WBL. Pre-test and post-test results were examined using IBM SPSS Version 26, with both paired-sample and independent-sample t-tests applied. The paired-sample t-test indicated notable improvement in both groups. The average score for the VBL group rose from 33.60 to 77.87, and for the WBL group from 33.20 to 59.73. The independent-sample t-test yielded a Sig. (2-tailed) value of 0.001, signifying a statistically significant difference between the groups. While both approaches were effective, VBL demonstrated a more substantial effect on students' grammar proficiency. Additionally, analysis showed no significant difference in performance based on gender, suggesting that both teaching methods were equally effective for male and female students. Overall, the findings underscore the advantages of incorporating digital media in grammar instruction, with VBL particularly enhancing student engagement and understanding of complex grammar topics. This study affirms the value of multimedia in English teaching and highlights the potential of visual and interactive content to boost learner motivation and success.

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INTRODUCTION

Mastering English grammar, particularly in constructing and understanding conditional sentences, is a crucial aspect of language learning, as it significantly contributes to the development of communicative competence and overall language proficiency. Conditional sentences are grammatical structures that express the dependency of one event on another and are composed of two main parts: the conditional (if-clause) and the result (main clause). These structures are vital in conveying hypothetical situations, general truths, and possible future outcomes (Hapsari et al., 2023; Liu & Barthel, 2021). As Kusumawati (2017) states, the ability to use conditional sentences appropriately allows learners to express nuanced ideas, from imagined events to future possibilities and regrets about the past, making them indispensable in both written and spoken communication.

Despite their importance, many Grade 10 students at SMA UNKLAB Airmadidi continue to experience difficulties in mastering conditional sentences, especially in distinguishing between Conditional Types 1, 2, and 3. These challenges are often rooted in the abstract nature of grammar rules and the limited opportunities for meaningful practice. Moreover, traditional teaching methods that focus on rote memorization and repetitive textbook exercises have proven insufficient in addressing students' learning needs (Dewi et al., 2020; Alharbi, 2019). Students often report low confidence and increased anxiety when asked to produce grammatically accurate sentences, resulting in frequent errors and ineffective communication (Quelhas et al., 2017). Even learners with otherwise strong English skills struggle with these structures, underscoring the need for more innovative and engaging pedagogical strategies.

In response to these issues, the integration of educational technology has emerged as a promising solution. Two prominent methods Video-Based Learning (VBL) and Web-Based Learning (WBL) offer distinct advantages in enhancing grammar instruction. VBL allows learners to visualize and hear grammar structures in context, making abstract concepts more accessible. WBL, on the other hand, provides interactive exercises and immediate feedback through platforms such as Quizizz or Wordwall, encouraging active learning and autonomy. According to Liando et al. (2025), recent advancements in technology have transformed education by introducing tools that support not only content delivery but also cognitive engagement. Maru et al. (2022) and Astuti et al. (2020) emphasize that modern teaching practices must leverage technology to create dynamic, student-centered learning environments. Furthermore, Harmer (2006, as cited in Sunubi & Rustam, 2020) highlights the power of videos in language instruction enhancing motivation, creativity, and cross-cultural awareness. Numerous studies (Prensky, 2007; Roblyer & Doering, 2010; Nadeak & Naibaho, 2020; Ismiyanti et al., 2023) support the notion that technology-enhanced learning fosters higher motivation, deeper engagement, and improved academic outcomes.

With the growing role of digital tools in education, it is important to assess the effectiveness of Video-Based Learning (VBL) and Web-Based Learning (WBL) in tackling grammar challenges like conditional sentences. Although both methods offer benefits, few studies have directly compared their impact, especially among Indonesian high school students. This study aims to evaluate and compare the effects of VBL and WBL on mastering Conditional Sentences Types 1, 2, and 3. The goal is to provide evidence-based recommendations for teachers, curriculum developers, and schools to optimize grammar teaching through engaging technological tools. The objectives of this study are to examine the effectiveness of Video-Based Learning (VBL) and Web-Based Learning (WBL) in improving the grammar mastery of Grade 10 students at SMA UNKLAB Airmadidi and to compare the grammar achievement of students taught using VBL and those taught using WBL to determine which method is more effective. This research aimed to answer the following questions:

1. How effective are Video-Based Learning (VBL) and Web-Based Learning (WBL) in improving students' grammar mastery?
2. Is there a significant difference in grammar achievement between students taught using VBL and those taught using WBL?

REVIEW OF LITERATURE

Conditional Sentences

Conditional sentences are key structures in English used to show that one event depends on another. They consist of two parts: the conditional clause (if-clause) and the main clause, where the former sets the condition and the latter expresses the result (Hapsari et al., 2023). These structures are often used to express intentions, hypothetical situations, wishes, or regrets. Mastering them enhances clarity and persuasiveness in both spoken and written communication (Muthohharah et al., 2020).

For EFL learners, understanding conditional rules is vital for grammatical accuracy and effective communication. They enable learners to express complex and hypothetical ideas precisely (Yusuf & Bahraen, 2021). Misuse can lead to ambiguity and confusion. Thus, recognizing and correctly applying different types of conditionals is crucial to improving language competence (Amjad et al., 2021).

Types of Conditional Sentences

There are four main types of conditional sentences: zero conditional, first conditional, second conditional, and third conditional, each with its own specific structure and usage (Taka, 2020).

1. Zero Conditional

Zero conditional sentences express general truths, facts, or habitual actions that always occur under specific conditions. Both the if-clause and main clause use the

simple present tense (Septiani et al., 2024). Common in scientific contexts and instructions, they show fixed cause-effect relationships (Kaufmann, 2015). Their clarity makes them ideal for explaining predictable outcomes and consistent patterns.

2. First Conditional

The first conditional describes real future situations that are likely to occur if certain conditions are met. It uses the present simple tense in the if-clause and the future simple tense in the main clause. This structure highlights possible outcomes based on specific conditions (Artadi & Setiawan, 2024). It is commonly used for predictions or warnings about realistic future events (Haza'Al Rdaat & Gardner, 2017).

3. Second Conditional

The second conditional expresses imaginary or unlikely situations in the present or future. It uses the past simple tense in the if-clause and would + base verb in the main clause. This form allows speakers to discuss wishes, dreams, or hypothetical alternatives, encouraging speculation about unreal scenarios (Gutierrez & Chadwick, 2020).

4. Third Conditional

The third conditional describes imagined past events that did not happen and their possible outcomes if conditions had been different. It uses the past perfect in the if-clause and would have + past participle in the main clause, showing unreal past situations. This conditional expresses hypothetical results, missed opportunities, and often evokes regret or reflection on past decisions (Taka, 2020; Elder, 2019).

5. Mixed Conditional

Mixed conditional sentences describe hypothetical situations that link different time frames, often combining past conditions with present or future results, or vice versa. They express how past actions affect present realities or how current situations might differ if past events had changed. This type blends second and third conditional forms, using mixed tenses to show the time relationship between condition and result.

Video-Based Learning

Effective learning engages multiple senses such as hearing, sight, touch, and emotions. Multimedia uses computers to present information through formats like audio, video, animations, text, graphics, and images, offering diverse ways for students to learn. Widely used worldwide, multimedia enhances teaching by providing varied digital media that enrich the classroom environment and improve student observation (Vijayalakshmi & Kumar, 2020). The increasing availability of English learning videos underscores technology's crucial role in modern English education.

Definition of Video-Based Learning

According to Ismiyanti et al. (2023), various media help students achieve learning goals. Video-Based Learning (VBL) is an effective audio-visual medium designed to present educational content in an accessible way. Videos can be applied to many subjects and learning styles. In the cognitive domain, videos enhance realism through color, sound, and movement, allowing students to experience historical or current events. Watching videos before or after reading also strengthens comprehension.

The Benefits of Video-Based Learning in Grammar Teaching

The benefits of employing video media in education include:

1. Videos can enhance students' foundational experiences when they engage in reading, discussion, and practice, serving as a substitute for real-world observations and showcasing objects that may be otherwise inaccessible.
2. They can accurately depict processes and can be shown repeatedly as necessary.
3. Videos foster and stimulate student motivation.
4. They are capable of presenting events to various audience sizes, whether large or small groups, as well as to diverse individuals.

When utilized effectively by educators, videos can elevate student engagement by offering an immersive and distinctive learning experience. In addition, Harmer (2006, as cited in Sunubi & Rustam, 2020) emphasizes that videos provide considerable benefits for learners, such as deepening their comprehension of language in practice, promoting cross-cultural insights, stimulating creativity, and enhancing their motivation. Educational videos offer rich visual and auditory content that helps students relate abstract concepts to real-world situations, which in turn fosters greater motivation and involvement in their learning process. Studies have consistently demonstrated that technology-enhanced learning environments improve students' motivation, engagement, and productivity. Moreover, video-based learning has been proven effective in improving student learning outcomes (Prensky, 2007; Roblyer & Doering, 2010; Nadeak & Naibaho, 2020; Sunubi & Utary, 2020; Chotiyarnwong et al., 2021; Luke, Pawestri & Sela, 2021; Panagiotidis, Krystalli, & Arvanitis , 2023; Sabang & Bochari, 2023; Ismiyanti et al., 2023)

Web-Based Learning

According to Singal, Lengkong, and Mogea (2021), the rapid advancement of science and technology, particularly in the area of Information and Communication Technology (ICT), has brought significant transformation to various sectors, including education. As a result, the teaching and learning process has shifted from traditional teacher-centered instruction to more dynamic, student-centered

approaches. This pedagogical shift encourages learners to become more engaged through activities such as discussions, group work, presentations, and the exploration of diverse learning resources, rather than passively listening to lectures.

One of the key innovations brought about by this technological development is the implementation of electronic or online learning, commonly referred to as e-learning. In contrast to the conventional face-to-face delivery of materials, e-learning integrates digital tools such as computers, smartphones, tablets, and other devices—allowing students greater access to learning content and enabling deeper understanding of subject matter. This trend has led to the emergence of various educational platforms that support both classroom-based and independent learning, including Edmodo, Google Classroom, Microsoft Office 365, Ruang Guru, Khan Academy, and Learning Management Systems (LMS), among others. Among these platforms, Wordwall stands out as a flexible and interactive tool especially suitable for grammar instruction and other engaging activities.

Furthermore, Joshua and Mogea (2024) emphasize that the integration of ICT in education is continually evolving through various techniques and methods. Within the context of e-learning, this integration refers not only to the use of digital media and electronic platforms but also to the adoption of mobile learning, which leverages mobile communication technologies and portable devices to promote flexible, accessible, and student-centered learning experiences.

Definition of Web-Based Learning

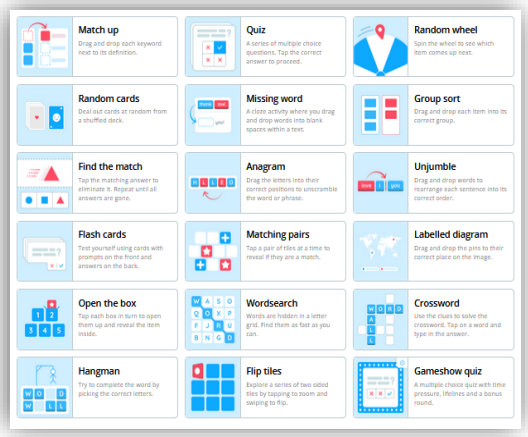
Web-Based Learning (WBL) refers to an instructional approach that leverages internet technology to deliver educational content, exercises, and interactive learning experiences. Through WBL, students can access learning materials using various devices and operating systems, including Android and Windows. Moreover, WBL functions as an online educational medium or website designed with pedagogical objectives, often developed by institutions to serve as integrated sources of scientific learning materials (Kenny, 2000; Wang, Cheng, Chen, Mercer, & Kirschner, 2017).

Advantages of Web-Based Learning in Language Acquisition

Sarica and Cavus (2008) highlight that web-based learning offers both students and educators significant flexibility by enabling access to learning content from virtually any place and often at any time. This effectively eliminates the constraints of time and physical location. Nonetheless, for this approach to be truly effective, the instructional content must be thoughtfully designed to actively engage learners and support meaningful learning experiences. The authors emphasize that while online learning presents numerous opportunities, its success depends on dedication and adequate resources. Proper implementation involves creating learner-centered materials and ensuring sufficient support throughout the learning process.

Some notable benefits of web-based learning include:

1. The ability to integrate diverse types of resources and formats
2. An efficient method for delivering course content
3. Accessibility of materials from any location at any time
4. Greater opportunity for expanding access to education
5. Encouragement of self-directed and active learning
6. Provision of supplementary materials to support traditional learning programs



In selecting tools for this study, Wordwall was chosen because it effectively combines interactivity, flexibility, and gamification to create a stimulating learning environment. Its user-friendly design allows both teachers and students to easily create, access, and interact with grammar-based activities, making it ideal for varied learning styles and classroom dynamics. Moreover, Wordwall supports both synchronous and asynchronous learning, which is crucial in today's technology-integrated education landscape. Wordwall provides an innovative and engaging platform that supports the delivery of grammar instruction, specifically focusing on conditional sentences in this research.

According to Khairunisa (2021), Wordwall is a digital learning platform that functions over the internet and offers a variety of educational features such as games, quizzes, and interactive activities that can be effectively used by teachers for both instruction and evaluation. Lestari (2021) adds that this application serves as a fun learning medium and assessment tool, enhancing students' learning experience by combining education with game-like elements. Students can access the platform via smartphones or laptops, making it highly flexible and accessible—aligning with the principles of WBL.

The Wordwall platform is equipped with various features that support the objectives of this study:

1. It offers a range of activity templates such as Match Up, Quiz, Missing Word, and Open the Box, which are adaptable to grammar topics including conditional sentences.
2. It incorporates gamification, which has been shown to boost student motivation and engagement—two crucial factors in successful grammar acquisition.

3. Activities can be either projected for class-wide participation or accessed individually by students, promoting both collaborative and independent learning environments.
4. Teachers can customize activities, track students' progress, and evaluate performance in real-time, which is highly beneficial for formative assessment during the learning process.
5. The platform also allows for resource sharing among educators, increasing its usability and adaptability in various instructional contexts.

In this study, Wordwall will be specifically applied as a supplementary media within the Web-Based Learning component to facilitate the practice and reinforcement of conditional sentences. By integrating this application into classroom activities, the research seeks to explore how gamified WBL tools can enhance grammar mastery among Grade 10 students in a more interactive and enjoyable manner.

RESEARCH METHOD

This study employed a quantitative quasi-experimental design using a non-equivalent pre-test and post-test control group to investigate the effectiveness of Video-Based Learning (VBL) and Web-Based Learning (WBL) in improving grade 10 students' mastery of conditional sentences (types 1, 2, and 3) at SMA UNKLAB Airmadidi. A total of 60 students were selected through purposive sampling and divided into two groups: 30 students received instruction via VBL and 30 via WBL. The research procedure involved seven meetings: the first and last were used for pre- and post-tests, while the five meetings in between provided instruction and practice on each conditional sentence type using either video lessons (VBL group) or interactive Wordwall activities (WBL group). For data analysis, both descriptive and inferential statistics were used. Descriptive analysis included mean scores and standard deviations, while inferential analysis used paired-sample t-tests (to assess improvement within each group) and independent-sample t-tests (to compare post-test results between groups). All analyses were conducted using SPSS version 26.0, with a significance level set at $p < 0.05$.

FINDINGS AND DISCUSSION

Findings

The data obtained in this study are the results of students' grammar achievement, specifically on Conditional Sentences Types 1, 2, and 3, using test instruments administered before the learning process (pretest) and after the learning process (posttest). The research sample consisted of 60 Grade 10 students at SMA UNKLAB Airmadidi. The research design employed was a two-group pretest-posttest design,

with one group taught using Video-Based Learning (VBL) and the other group using Web-Based Learning (WBL).

Pretest	Treatment	Posts
Y1	X	Y2

Table 1. Design One Group Pretest Posttest

Normality Test

As an initial step in the prerequisite analysis, a normality test was conducted to determine whether the distribution of students' test scores was normal. This test is essential to ensure that the data meet the assumptions required for using parametric statistical methods. The Shapiro–Wilk test was employed for this purpose, as the sample size in each group was less than 100. The results of the analysis are presented as follows:

Normality Test Using Shapiro-Wilk Test

(This test was used because the sample size was less than 100)

Null Hypothesis (H_0): The data are not normally distributed/The data distribution does not deviate from a normal distribution.

Alternative Hypothesis (H_a): The data are normally distributed.

Decision Rule:

Reject H_0 if Sig. ≤ 0.05

The data are considered normally distributed if Sig. > 0.05

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Class	Statistic	df	Sig.	Statistic	df	Sig.
Result	Pre Test VBL	.138	30	.149	.965	30	.418
	Post Test VBL	.164	30	.038	.950	30	.173

Table 2. Normality Test Results for Pre-Test and Post Test Video Based Learning (VBL)

After processing the pre-test and post-test data from the Video-Based Learning (VBL) group using IBM SPSS Version 26, the results of the normality test using the Shapiro–Wilk test showed that the significance value for the pre-test was > 0.05, namely 0.418, and the post-test significance value was also > 0.05, which was 0.173. This indicates that the distribution of the research data is normal and thus appropriate for further statistical analysis.

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Class	Statistic	df	Sig.	Statistic	df	Sig.
Result	Pre Test WBL	.107	30	.200*	.947	30	.138
	Post Test WBL	.114	30	.200*	.933	30	.059

Table 3. Normality Test Results for Pre-Test and Post Test Web Based Learning (WBL)

After processing the pre-test and post-test data from the Web-Based Learning (WBL) group using IBM SPSS Version 26, the results of the normality test using the Shapiro–Wilk test showed that the significance value for the pre-test was > 0.05, namely 0.138, and the significance value for the post-test was also > 0.05, which was 0.059. This indicates that the data distribution in this study is normal and suitable for further statistical analysis.

Hypothesis Testing

After the group is confirmed to be normally distributed, the next stage can proceed, which is hypothesis testing. In this study, hypothesis testing is conducted using parametric statistics, specifically the Paired-Samples t-Test and the Independent Samples t-Test.

Paired-Samples t-Test

The hypotheses tested are:
Ho = There is no difference in the grammar mastery of students before and after using Video-Based Learning (VBL), declared rejected. Ha = There is a difference in the grammar mastery of students before and after using VBL in learning, declared accepted.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Test VBL	33.60	30	16.728	3.054
	Post Test VBL	77.87	30	8.645	1.578

Table 4. Paired Samples Statistics Video Based Learning (VBL)

Based on the results above, it can be observed that there is a difference in the mean scores between the Pre-Test and Post-Test after implementing the Video-Based Learning (VBL). The mean score in the Post-Test is higher than that in the Pre-Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pre Test VBL - Post Test VBL	-44.267	13.973	2.551	-49.484	-39.049	-17.352	29	.000

Table 5. Paired-Samples t-Test
Video Based Learning (VBL)

After the pre-test and post-test data from the VBL group were processed using IBM SPSS Version 26, the Paired Samples t-test showed a Sig. (2-tailed) value of < 0.05, specifically 0.000, indicating that the alternative hypothesis (Ha) is accepted. This means that the use of Video-Based Learning (VBL) had a significant effect on English language learning, particularly on the topic of Conditional Sentences Types 1, 2, and 3, in improving students' learning outcomes.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Test WBL	33.20	30	21.326	3.894
	Post Test WBL	59.73	30	27.148	4.957

Table 6. Paired Samples Statistics
Web Based Learning (WBL)

Based on the results above, it can be observed that there is a difference in the mean scores between the Pre-Test and Post-Test after using Web-Based Learning (WBL). The mean score in the Post-Test is higher than the mean score in the Pre-Test.

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pre Test VBL - Post Test VBL	-26.533	23.145	4.226	-35.176	-17.891	-6.279	29	.000

Tabel 7. Paired-Samples t-Test
Web Based Learning (WBL)

After processing the pre-test and post-test data from the Web-Based Learning (WBL) group using IBM SPSS Version 26, the results of the Paired Samples t-test showed a significance value (2-tailed) < 0.05, which was 0.000, indicating that the alternative hypothesis is accepted. This means that the use of WBL has an effect on English language learning, particularly on the topic of Conditional Sentences Types 1, 2, and 3, in improving students' learning outcomes

Independent Sample t-Test

	Class	N	Mean	Std. Deviation	Std. Error Mean
Result of Post Test	Post Test VBL	30	77.87	8.645	1.578
	Post Test WBL	30	59.73	27.148	4.957

Table 8. Group Statistics
Video Based Learning (VBL) Group and Web Based Learning (WBL) Group

The results in the table above show the comparison of the mean post-test scores between the experimental groups that were given different treatments. One group, consisting of 30 students, used Video-Based Learning, while the other group, also consisting of 30 students, used Web-Based Learning. The average scores indicate that the group taught with the Video-Based Learning achieved higher average scores compared to the group taught with the Web-Based Learning.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Result of Post Test	Equal variances assumed	25.798	.000	3.486	58	.001	18.133	5.202	7.721	28.546
	Equal variances not assumed			3.486	34.822	.001	18.133	5.202	7.571	28.696

Table 9. Independent Sample t-Test

After processing the post-test data of students using the VBL and post-test data of students using the WBL with IBM SPSS Version 26, the results of the independent samples t-test showed a significance value (2-tailed) < 0.05, which was 0.001 for Equal variances assumed and 0.001 for Equal variances not assumed. This indicates a significant difference between the two media. It can be concluded that both media are effective in improving students' learning outcomes in English, particularly in the topic of Conditional Sentences Type 1, 2, and 3. However, the VBL has a stronger impact on improving the learning outcomes of grade 10 students at SMA UNKLAB Airmadidi in learning English, especially in the topic of Conditional Sentences Type 1, 2, and 3.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post Test VBL	Equal variances assumed	.184	.671	.493	28	.626	1.593	3.228	-5.019	8.204
	Equal variances not assumed			.499	26.867	.622	1.593	3.195	-4.964	8.150

Table 10. Independent Sample t-Test VBL Group based on gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Post Test VBL	Male	13	78.77	8.388	2.326
	Female	17	77.18	9.029	2.190

Table 11. Group Statistics Video Based Learning (VBL) Group based on gender

After the post-test data for the Video-Based Learning (VBL) group were analyzed using an independent samples t-test, the results showed that the average post-test score for male students was 78.77, while that for female students was 77.18 indicating no substantial difference between the two groups. This finding is supported by the Sig. (2-tailed) values in both the Equal variances assumed (0.626) and Equal variances not assumed (0.622) rows, both of which are greater than 0.05. These results suggest that there is no statistically significant difference between male and female students in their comprehension of the material delivered through Video-Based Learning. Both male and female students demonstrated a similarly good level of mastery in understanding conditional sentences type 1, 2, and 3.

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Post Test WBL	Male	15	60.00	30.538	7.885
	Female	15	59.47	24.372	6.293

Table 11 Group Statistics Web Based Learning (WBL) Group

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post Test WBL	Equal variances assumed	1.249	.273	.053	28	.958	.533	10.088	-20.131	21.198
	Equal variances not assumed			.053	26.687	.958	.533	10.088	-20.177	21.244

Table 12 Independent Sample t-Test WBL Group based on gender

After the post-test data for the Web-Based Learning (WBL) group were analyzed using an independent samples t-test, the results indicated that the average post-test score for male students was 60.00, while that for female students was 59.47—showing no substantial difference between the two groups. This is supported by the Sig. (2-tailed) values in both the Equal variances assumed (0.958) and Equal variances not assumed (0.958) categories, both of which are well above the threshold of 0.05. These results indicate that there is no statistically significant difference between male and female students in their understanding of the material delivered through Web-Based Learning. Both male and female students demonstrated similar levels of mastery in learning conditional sentences type 1, 2, and 3.

Discussion

The Effectiveness of Video-Based Learning (VBL) and Web-Based Learning (WBL) in Improving Grammar Mastery

The results of this study show that both Video-Based Learning (VBL) and Web-Based Learning (WBL) make a positive contribution to improving students' mastery of *conditional sentences* at the high school level. However, the patterns of effectiveness of these two approaches show different characteristics. VBL, with its visual and auditory powers, offers a more concrete and contextual learning experience. Students can see real representations of the assumed sentence forms through visual narratives, illustrative examples, and intonation in the emphasis on grammatical structure. This is in line with the principle of *Dual Coding Theory* put forward by Paivio (1986), which

states that information conveyed through verbal and visual channels will be easier for students to process and remember.

Meanwhile, WBL provides advantages in terms of flexibility and independence of learning. A web platform that provides interactive exercises, links to a variety of authentic resources, and online discussion forums give students the opportunity to build their grammar comprehension independently and repeatedly. This supports a constructivist view, where students play an active role in building their knowledge through exploration and reflection. However, the effectiveness of WBLs tends to depend on students' digital literacy levels and their ability to navigate and make optimal use of web features. In this context, it can be understood that although both methods are equally effective, the differences in learning styles and students' readiness for technology greatly affect the results obtained. Thus, these results confirm that in the context of grammar teaching in the EFL, the integration of video-based and web-based approaches can complement each other. Teachers need to consider the learning profile of students when choosing the learning media to use, so that the teaching strategy is not only effective in general, but also personally relevant for students.

Comparison of Grammar Achievement Between Students Using VBL and WBL

Furthermore, the results of the statistical test showed a significant difference in grammar achievement between students who were taught using VBL and those who were taught using WBL. The group of students who received learning through VBL consistently showed higher results in mastery of assumption sentences than the WBL group. This difference reflects the possibility that VBL is able to provide a more meaningful and easy-to-understand learning context, especially in teaching complex grammatical structures such as *conditional sentences*. One of the main factors that may explain the advantages of VBL is its ability to provide *hands-on* modeling and *visual scaffolding*, which greatly assists students in forming associations between sentence forms and meanings. Additionally, the ability to repeat videos provides an opportunity for students to learn at their own pace, which has been shown to improve grammar retention. In a study by Mayer (2005) on multimedia learning, it was stated that the presentation of material that involves sound and images simultaneously is more effective in building conceptual understanding than text alone.

Conversely, while WBL offers extensive access to information and structured exercises, this approach can feel less effective for students with kinesthetic or auditory learning styles, which require stimulus beyond interactive reading and clicking. In addition, in the context of high schools in Indonesia, the limitations of technological infrastructure and the digital divide also affect students' involvement with WBL. These findings are in line with previous research by Chen & Yang (2021), which stated that VBL significantly improves grammar learning outcomes in the context of EFL due to its multimodality properties. Nevertheless, it should be noted that the

effectiveness of any method remains dependent on how the teacher designs and integrates it into meaningful learning activities.

Further Justification: Integration of Digital Learning Media in Grammar Mastery

In the increasingly advanced era of digital learning, the use of technology in English teaching is no longer an alternative, but a necessity. One of the important aspects of teaching English as a foreign language (EFL) is mastery of grammar, especially complex structures such as *conditional sentences*. This research focuses on two popular digital approaches in the context of EFL, namely Video-Based Learning (VBL) and Web-Based Learning (WBL), both of which have different media characteristics, presentation strategies, and pedagogical impacts. With these two approaches in mind, it is important to further explore how the integration of digital learning media affects students' grammar achievement and how their learning preferences are important variables that contribute to shaping the effectiveness of these methods.

Video-Based Learning (VBL) is a form of learning that relies on the presentation of information through audiovisual content. In the context of grammar learning, VBL provides advantages in terms of visualizing sentence structure and strengthening comprehension through repetition and intonation. Students not only gain exposure to textual forms of grammar, but also see how those structures are used in real-world contexts through conversational examples or visual narratives. This advantage provides a dual stimulus that is in line with the *Dual Coding* theory developed by Paivio (1986), which states that learning will be more effective when information is conveyed through verbal and visual channels simultaneously. This strengthens the association of meaning and magnifies the chances of long-term retention in students' memory.

However, the effectiveness of VBL does not only lie in its visual strength, but also in how students interact with the content. The ability to replay, stop, or speed up videos allows students to learn at their own pace. This provides a high sense of autonomy in the learning process, which according to Deci & Ryan (2000) is an important factor in increasing students' intrinsic motivation. In the context of grammar, this autonomy is the key to dismantling complex structures such as zero, first, second, and third conditionals that often confuse EFL students.

On the other hand, Web-Based Learning (WBL) offers advantages in terms of flexibility in terms of access to various digital learning resources. The web platform allows the integration of grammar materials in various forms: texts, interactive quizzes, discussion forums, and even automatic correction tools. This diversity supports student-centered learning and provides a wider space for exploration. Students can access links to additional grammar explanations, work on self-paced exercises, or read contextual articles that apply conditional sentences in real life. This

approach is perfect for students with reflective and independent learning characters who enjoy a discovery and exploration-based learning process.

Nevertheless, the effectiveness of WBL is largely determined by the digital readiness of students and the quality of the design of the platform used. In the case of high school students in Indonesia, inequality of access to technological devices and stable internet connections is still a challenge. Additionally, without proper guidance, web-based learning can become too free and risk confusing students who lack digital navigation skills. In this context, teachers have an important role to play in crafting structured web-based learning plans and directing students to valid and relevant resources.

The results showed that although both approaches both improved students' grammar mastery, VBL showed a more significant advantage than WBL in teaching presumption sentences. This can be attributed to the fact that VBL is more concrete in providing a contextual and easy-to-understand model of grammar use by the majority of students who have visual and auditory learning preferences. However, that does not mean that WBL is not effective. Students who have high digital literacy and independent learning motivation can actually maximize the potential of WBL to deepen grammar understanding more broadly and flexibly.

Thus, the integration of digital learning media should not be seen as an exclusive option, but as an opportunity to create a *blended approach* that is tailored to the characteristics of students. Teachers need to recognize students' learning styles and preferences to determine when and how to optimize VBL and WBL. The differentiated instruction approach in the use of learning technology is an important strategy so that grammar learning is not only cognitively effective, but also affectively interesting and contextually relevant. In conclusion, the integration of digital media such as VBL and WBL in grammar teaching in EFL classrooms has a positive impact, noting that the selection should be based on a deep understanding of students' needs, abilities, and learning styles. This study makes an important contribution to pedagogical practice in the digital age, as well as encouraging the development of a more adaptive, inclusive, and technology-based grammar learning model.

The findings of this study demonstrate that both Video-Based Learning (VBL) and Web-Based Learning (WBL) are effective instructional methods in enhancing students' grammar achievement, particularly in mastering Conditional Sentences Types 1, 2, and 3. This conclusion is based on the results of the paired sample t-tests, which showed a significant increase in post-test scores compared to pre-test scores in both groups. These results indicate that students in both the VBL and WBL groups benefited from the instructional interventions, suggesting that integrating multimedia-based strategies into English language teaching can positively influence student learning outcomes.

However, when comparing the post-test results of the two groups using the independent sample t-test, a significant difference was found between the VBL and

WBL groups. The students taught through Video-Based Learning achieved higher post-test scores than those taught using Web-Based Learning. This difference suggests that while both methods are beneficial, VBL may provide more impactful support for students' understanding of grammar concepts. One possible reason is the nature of video content, which combines visual, auditory, and often emotional elements that can make abstract grammar rules such as those governing conditional sentences more concrete and memorable for learners.

The visual and dynamic aspects of video materials may help clarify complex sentence structures, illustrate real-life usage of conditional forms, and sustain students' attention throughout the lesson. In contrast, although Web-Based Learning also offers interactive content, it may not always provide the same level of multimodal engagement that videos offer. Moreover, videos can foster independent learning, allowing students to pause, rewind, and re-watch explanations as needed, which may contribute to deeper understanding and retention.

Additionally, when the post-test results were analyzed based on gender using the independent sample t-test, no statistically significant differences were found between male and female students in either group. In the VBL group, the average post-test score for male students was 78.77 and for female students 77.18, while in the WBL group, male students scored an average of 60.00 and female students 59.47. In both cases, the Sig. (2-tailed) values exceeded the 0.05 threshold, confirming that gender did not significantly influence grammar achievement. These findings suggest that both male and female students were equally able to absorb and apply the material on conditional sentences when taught using either instructional method. This highlights the gender-neutral effectiveness of both VBL and WBL in supporting grammar learning.

These findings align with previous research that highlights the advantages of video in promoting comprehension, motivation, and learner autonomy in language learning. Thus, while WBL remains a valuable tool in the digital classroom, educators might consider prioritizing or integrating VBL more strategically, particularly when teaching complex grammar topics.

Nadeak and Naibaho (2020) found that video-based learning significantly improves students' achievement, especially in practical subjects, by enhancing comprehension through visual and interactive content. This supports the current study's use of video to improve grammar mastery, particularly in conditional sentences. Similarly, Zitouni and Kerthiou (2020) reported that video techniques motivate students and reduce speaking anxiety, implying benefits for grammar learning through increased participation and motivation.

Chotiyarnwong et al. (2021) showed that video-based learning enhances comprehension and retention in complex subjects by combining visual and auditory elements, a strategy adopted in this study to simplify grammar rules for high school students. Joko (2021) found videos improve cognitive outcomes and motivation

during English teaching, supporting the expectation that video integration boosts grammar learning interest and understanding.

Sabang and Bochari (2023) demonstrated YouTube videos' effectiveness in improving pronunciation, highlighting how digital video content can enhance language skills a principle applied here to grammar mastery via curated videos. Panagiotidis, Krystalli, and Arvanitis (2023) emphasized technology's role in boosting motivation and self-directed learning, relevant to this study's assumption that video-based learning raises motivation and grammar performance.

Ismiyanti et al. (2023) confirmed video-based learning's positive impact on cognitive outcomes in elementary students using quasi-experimental design, paralleling the methodology of the current study assessing grammar mastery in Grade 10. While video-based learning is effective, web-based learning also supports grammar mastery. Mazelin et al. (2022) found that Wordwall increased student engagement and confidence in ESL classrooms. Abwi (2023) reported Wordwall boosted enthusiasm and focus in Islamic education. Rahmawati and Wijayanti (2022) observed Wordwall improved engagement and eased teacher assessment, highlighting its dual role as both a learning and evaluation tool. These findings align with the current study, which compares the effectiveness of Video-Based Learning (VBL) and Web-Based Learning (WBL) in improving students' mastery of conditional sentences (Types 1, 2, and 3). Although independent sample t-test results show VBL yields higher scores than WBL, both methods positively enhance grammar understanding. The study incorporates Wordwall as part of the WBL approach to extend previous positive effects in grammar instruction. By using Wordwall's gamified and interactive features, the study expects to boost student engagement, motivation, and participation, similarly to prior research. Thus, both VBL and WBL are effective, with VBL having a slightly stronger impact.

CONCLUSION AND CONSIDERATION

This study aimed to investigate the effectiveness of Video-Based Learning (VBL) and Web-Based Learning (WBL) in enhancing grammar achievement among Grade 10 students at SMA UNKLAB Airmadidi, particularly in mastering Conditional Sentences Types 1, 2, and 3. The research utilized a pre-test and post-test design and statistical analysis using SPSS to evaluate students' performance before and after the treatment. The findings reveal that both VBL and WBL significantly improved students' grammar achievement. The use of digital media, whether video-based or web-based, successfully increased student engagement and facilitated better understanding of grammar rules. This confirms that integrating technology into language instruction is beneficial and effective in fostering student learning.

However, further analysis using the Independent Samples t-test showed a significant difference in the effectiveness of the two methods. Students in the VBL

group achieved higher post-test scores than those in the WBL group. This suggests that video content, with its combination of visual and auditory input, provides a more impactful learning experience than web-based materials that may rely more heavily on text. VBL appears to support comprehension, retention, and contextual understanding more effectively, especially for abstract and complex grammar topics like conditional sentences. In addition, analysis based on gender using the Independent Samples t-test indicated no significant difference between male and female students' post-test scores in either the VBL or WBL groups. Both male and female students demonstrated comparable levels of understanding and achievement in mastering conditional sentences. This implies that the effectiveness of both VBL and WBL is consistent across genders, and that these digital learning approaches can be equitably applied to support grammar instruction for all students.

1. In conclusion, both instructional approaches contributed to students' learning, but Video-Based Learning proved to be more effective. The results of this study highlight the importance of selecting the right mode of digital instruction based on the learning objectives and the nature of the material being taught. Moreover, the gender-based findings suggest that such instructional strategies are inclusive and equally beneficial for both male and female learners.

Based on the results of this study, several suggestions are offered for future practice and research:

2. **For Teachers:** English teachers are encouraged to integrate Video-Based Learning into their instructional practices, particularly when teaching complex grammar topics. Videos that contextualize grammar use in real-life situations can enhance students' understanding and make learning more enjoyable and meaningful.
3. **For Schools and Administrators:** Educational institutions should support the provision of multimedia resources and training for teachers to effectively utilize video content in their teaching. Investing in quality video materials and internet infrastructure will enhance the teaching and learning process.
4. **For Future Researchers:** Further studies can explore the long-term impact of VBL and WBL on grammar retention and whether combining both approaches (blended learning) offers better results. Additionally, research could also examine how students' learning styles and digital literacy influence the effectiveness of these methods.
5. **For Curriculum Developers:** The integration of technology-based learning materials, especially videos, should be considered in curriculum planning to cater to the diverse needs of students and to align with current digital learning trends.

Overall, this study supports the growing body of evidence that digital learning tools can significantly enhance language learning outcomes, especially when carefully selected and purposefully applied.

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