

## The effect of digital media on grammar mastery for TOEFL preparation

Dedi Jasrial<sup>1</sup>, M. Zaim<sup>2</sup>, Harris Efendi Thahar<sup>3</sup>

Universitas Negeri Padang<sup>1,2,3</sup>  
email: dedijasrial92@gmail.com<sup>1</sup>

**Abstract** - In this digital era, many scholars have reported the effectiveness of digital educational platforms in teaching English grammar. However, little research utilizes digital media by integrating YouTube videos and the Quizizz platform for teaching grammar for TOEFL. To fill this gap, this research aims to investigate the effect of and students' perceptions of these two platform interventions on students' grammar mastery for TOEFL. This experimental one-group pre-test-post-test design was applied to students of the Registration Certificate for Nutrition program at the Bengkulu Health Polytechnic of the Ministry of Health which consisted of 42 persons. The data of this research were the grammar tests given in the pre-test and post-test and the students' perception questionnaire. A non-parametric Wilcoxon test using SPSS package version 16 and descriptive statistics were used to analyse the data. The result indicates that students' grammar mastery for TOEFL preparation improved after giving interventions using YouTube and Quizizz platforms. Moreover, the results show students overwhelmingly perceive YouTube videos and Quizizz quizzes as highly effective for improving their grammar mastery for TOEFL preparation. They strongly believe their understanding of grammar improves and express high motivation, confidence, engagement, and effectiveness in applying and remembering grammar concepts. In brief, this result emphasizes the efficacy of utilizing multimedia resources and interactive platforms within educational settings, particularly in teaching English grammar. It is suggested instructors are encouraged to incorporate YouTube videos and Quizizz quizzes into TOEFL preparation courses to boost grammar mastery, leveraging multimedia resources for enhanced learning outcomes in the digital era.

**Keywords:** educational digital media, grammar mastery, TOEFL preparation, Quizizz, Youtube

### 1. Introduction

For individuals who are not native English speakers and are looking to study or work in English-speaking countries, the Test of English as a Foreign Language (TOEFL) serves as a critical indicator of their language proficiency. Administered globally, TOEFL is designed to assess the English language skills of non-native speakers in acquiring and using English. The test evaluates the ability of test-takers to understand and use English in academic and professional settings (Fitria, 2021). Scores achieved in the TOEFL test are widely recognized by universities, colleges,

and employers across the globe. They can be a key factor in determining eligibility for admission to academic programs or employment opportunities.

One of the key components of the TOEFL test is grammar proficiency. Mastery of English grammar is essential not only for achieving a high score but also for effective communication either spoken or written (Badash et al., 2020) and comprehension in academic and professional settings (Arsyad et al., 2024). A strong understanding of grammar is essential for students to express their ideas coherently, accurately, and convincingly so it is regarded as a vital skill that is tested in TOEFL.

However, many students encounter significant challenges when mastering grammar for the TOEFL due to the complexity of grammar rules, grammar knowledge of test takers, and time allocation (Fitria, 2021; Jasrial et al., 2022). Moreover, students' mistakes are likely caused by ignorance, carelessness, hesitation, unconsciousness, and wrong choices when doing tests (Hajri et al., 2018; Hampp et al., 2021). These challenges often stem from the differences between their native language and English grammar structures, as well as the complexities and nuances inherent in English grammar itself. In addition, Jasrial et al. (2022) claim that traditional methods of grammar instruction may not always be engaging or tailored to individual learning needs, leading to frustration and a lack of motivation among students. These obstacles can hinder students' ability to perform well in the TOEFL, potentially limiting their academic and professional opportunities.

In response to these challenges, the teaching of English grammar can benefit from the use of digital media. Reyna et al. (2017) assert that digital media refers to various types of technology and platforms that enable the creation, storage, distribution, and interaction with digital content, such as text, images, audio, and video, for educational and instructional purposes. Furthermore, they categorize digital media into audio podcasts, blog postings, brochures, digital stories, videos, blended media, and games. These digital media are interactive and engaging resources that can increase student engagement and facilitate more effective learning (Hikmah, 2019).

Several studies have shown the positive effect of digital media on teaching grammar in the EFL context, for example, an English animated sitcom (Saeedi & Biri, 2016), Pixton (Cabrera et al., 2018), online gamification (Asifayanti et al., 2021), and video and gamification in online settings (Quizizz and Kahoot) (Arsyad et al., 2024). The results of these studies indicate that students' grammar mastery improved using those media in the EFL context and different levels of education such as junior high schools, senior high schools, and university students.

However, implementing YouTube and Quizizz in teaching grammar for TOEFL is little carried out by scholars. Digital platforms like YouTube and Quizizz have emerged as innovative solutions to enhance grammar learning for TOEFL preparation. YouTube offers a vast array of educational content, including grammar tutorials, interactive lessons, and practice exercises, presented in engaging and accessible formats (Muslem et al., 2022). Similarly, Lastari (2022) states that Quizizz provides customizable quizzes and games that allow students to practice grammar concepts in a fun and interactive way. By leveraging the power of technology, these platforms can cater to different learning styles and paces, making grammar learning more enjoyable and effective (Munawir & Hasbi, 2021), particularly for TOEFL aspirants.

This study aims to investigate the effect of digital media on grammar mastery for TOEFL, examining how these digital platforms can address the challenges faced by students in mastering grammar for the TOEFL. By exploring the effectiveness of YouTube and Quizizz in enhancing grammar proficiency and improving TOEFL scores, this research seeks to provide valuable insights and practical recommendations for educators and learners seeking to optimize their TOEFL preparation through digital means. Thus, to address the problems, the research questions are addressed as follows; (1) Is there any significant difference in students' grammar mastery for TOEFL preparation before and after interventions using digital media? (2) What are students' perceptions of digital media interventions for grammar mastery for TOEFL preparation?

## **2. Method**

This research used a quantitative approach with an experimental one-group pre-test-post-test design because the intervention was given in an experimental group without a control group as the comparison and tests were given before and after the intervention (Ary et al., 2010). The independent variable was digital media (X1) and the dependent variable was grammar mastery for TOEFL preparation.

This research involved a TOEFL preparation class for students of the Registration Certificate for Nutrition Program at the Bengkulu Health Polytechnic of the Ministry of Health. The number of students involved in this experimental research was 41 persons. Their ages ranged from 20-21 years old.

The interventions were given in five meetings and two meetings for pre-test and post-tests. Each meeting consisted of 120 minutes. First, the videos from YouTube related to the topics of each meeting were played online in front of the class using m-focus and supported by speakers from the Yanto Tanjung channel (<https://www.youtube.com/@Yantotanjung>). Second, the instructor explained again the topics, provided more relevant examples and made discussions. Lastly, the exercises were given through Quizizz and followed by the instructor's explanation. These activities were conducted topic by topic in each meeting. The topics and procedures of interventions carried out in this experimental research were presented in the following table;

Table 1 The Procedures of Interventions

Meeting	Topics	Interventions		
Meeting 1	Pre-test	-	-	-
Meeting 2	Subject and Verb Agreement, Objects of Preposition, Present Participles, and Past Participle	Played YouTube online	Instructor's explanation, discussion	Exercises through Quizizz, instructor's explanation
Meeting 3	Coordinate Connectors, Adverb Clause Connectors, Noun Clause Connectors, and Noun Clause Connectors/Subjects	Played YouTube online	Instructor's explanation, discussion	Exercises through Quizizz, instructor's explanation
Meeting 4	Adjective Clause Connectors, Adjective Clause Connectors/Subjects, and Agreement after Expressions of Quantity	Played YouTube online	Instructor's explanation, discussion	Exercises through Quizizz, instructor's explanation
Meeting 5	Agreement after Certain Words, Parallel Structure with Coordinate Connectors, Parallel Structure with Paired Conjunctions, and Past Participles after Have	Played YouTube online	Instructor's explanation, discussion	Exercises through Quizizz, instructor's explanation
Meeting 6	Present Participles or Past Participles after Be, Base Form Verbs after Modals, Singular and Plural Nouns, and Countable, Uncountable Nouns, and Adjectives and Adverbs	Played YouTube online	Instructor's explanation, discussion	Exercises through Quizizz, instructor's explanation
Meeting 7	Post-test	-	-	-

The data of this research were grammar tests given in the pre-test and post-test. The questions of these tests covered 21 topics as presented in Table 1. The number of questions was 40 and consisted of 15 structured questions (questions 1-15) and written expression questions (questions 15-40). These questions were taken from the TOEFL book entitled Longman Introductory Course for the TOEFL test by Deborah Philips. Moreover, to address students' perception of digital media intervention, a questionnaire was administered to students after they did the post-test. The questionnaire consisted of 10 six questions in terms of the Likert Scale with four options of answers; Strongly Agree (SA = 4 points), Agree (A = 3 points), Disagree (D = 2 points), and Strongly Disagree (SD = 1 point).

The data of this research were analysed quantitatively. The data taken from the questionnaire were analysed using Microsoft Excel to count the descriptive statistics of each item by counting the frequency and percentage of each option and the mean score of each item. The mean score was the result of the calculation of student's answers for each option in each item based on the weight score of each option of answer. Then, the mean score of each statement was interpreted based on the mean score range (SA = 3.26 – 4.00, A = 2.51 – 3.25, D = 1.76 – 3.20, and SD = 1.00 – 1.75).

In addition, the data taken from grammar tests were analysed using SPSS Package version 16 using the Wilcoxon test. This was because the data were not normally distributed after the normality test. It is presented in the following table;

Table 2 Normality Test			
n = 41	Shapiro-Wilk		
	Statistic	df	Sig.
Pre-test of grammar mastery	.832	41	.000
Post-test of grammar mastery	.821	41	.000

As presented in Table 2, since the participants of this research were above 30, the interpretation of the normality test was based on the Shapiro-Wilk column. The p values of pre-test and post-test of grammar mastery were .000 or  $p < .005$ . It indicates that p values were less than the predetermined significance level, then it can be concluded that the data were not normally distributed (Supranto, 2000). Therefore, the data were analysed using a nonparametric test, the Wilcoxon test.

### 3. Results and Discussion

#### 3.1. The effect of digital media on students' grammar mastery before and after interventions

After the interventions were given in five meetings using digital media (YouTube and Quizizz) to the students of the Registration Certificate for Nutrition Program at the Bengkulu Health Polytechnic of the Ministry of Health, the statistical analysis results are presented in the following tables;

Table 3 Wilcoxon Signed Rank					
			N	Mean Rank	Sum of Ranks
Posttest	of	Negative Ranks	0 <sup>a</sup>	.00	.00
grammar mastery		Positive Ranks	41 <sup>a</sup>	21.00	861.00
- Pre-test	of	Ties	0 <sup>c</sup>		
grammar mastery		Total	41		

- Post-test of grammar mastery < pre-test of grammar mastery
- Post-test of grammar mastery > Pre-test of grammar mastery
- Post-test of grammar mastery = Pre-test of grammar mastery

Table 4 Test Statistics

	Post-test of grammar mastery – pre-test of Grammar Mastery
Z	-5.632 <sup>a</sup>
Asymp. Sig. (2-tailed)	.000

a. Based on negative ranks  
b. Wilcoxon Signed Ranks Test

Based on the Wilcoxon test results in Tables 3 and 4, there is a significant difference in the students' grammar mastery before and after the intervention using Digital Media (YouTube and Quizizz) for TOEFL preparation at the Health Polytechnic of the Ministry of Health in Bengkulu. The obtained Z value is -5.632 with a significance value (Asymp. Sig.) of .000, indicating that the difference between the pre-test and post-test is statistically significant. Further analysis of the ranks reveals that out of 41 cases, all showed higher ranks in the post-test compared to the pre-test, with no lower ranks observed in the post-test. This consistent improvement in grammar mastery among the students after the Digital Media intervention underscores the effectiveness of using platforms such as YouTube and Quizizz for TOEFL preparation at the Bengkulu Health Polytechnic.

The research findings highlight a significant enhancement in students' grammar proficiency following interventions employing YouTube videos and Quizizz within grammar instruction. This outcome underscores the effectiveness of leveraging multimedia resources and interactive platforms in educational settings. Moreover, this outcome indicates that YouTube's success in bolstering grammar mastery can be attributed to its ability to offer authentic, engaging content that caters to diverse learning styles. The visual and auditory elements of videos can help elucidate grammar concepts, making them more comprehensible and memorable for students. This opinion is also supported by Girón-García and Fortanet-Gómez (2023), videos on YouTube are well-organized multimodal arrangements consisting of a variety of visual and verbal modes like stills, moving images, text, spoken language, sounds, animations, and graphics that may help students understand the learning materials faster. which is a much more complex system of communication than text-only. Additionally, the accessibility of YouTube allows for a wide array of content tailored to different proficiency levels and learning objectives, enabling teachers to select materials that align closely with their instructional goals.

Furthermore, Quizizz is an online platform that offers interactive quizzes to help students improve their grammar skills. The platform provides immediate feedback and reinforcement of learning, which can help students retain grammar rules better. Pratiwi and Waluyo (2022) emphasize that Quizizz uses a gamified format that makes grammar practice more enjoyable and motivating for students. This creates a positive learning experience that encourages active participation and helps students develop their grammar proficiency.

Comparing these findings with previous studies such as Cabrera et al. (2018), Asifayanti et al. (2021), and Arsyad et al. (2024), which also demonstrated the efficacy of YouTube and gamification in enhancing grammar mastery, reveals consistent trends across different educational contexts. Cabrera et al. (2018) emphasized the benefits of using YouTube videos in language instruction, highlighting their role in promoting student engagement and comprehension. Asifayanti et al. (2021) focused on online gamification techniques, demonstrating their effectiveness in motivating students and reinforcing grammar skills. Similarly, Arsyad et al. (2024) explored the combined use of videos and gamified platforms like Quizizz and Kahoot, showcasing their potential for enhancing grammar learning outcomes in online settings.

Overall, incorporating multimedia resources and gamification strategies, such as YouTube videos and Quizizz, in grammar instruction can be highly beneficial for students. These approaches can make the learning process more engaging and motivating, ultimately leading to a better understanding and mastery of grammar concepts.

### 3.2. Students' perceptions of digital media interventions for grammar mastery for TOEFL preparation

This second research question aimed to provide deeper insights into students' perceptions of digital media (YouTube and Quizizz) interventions, allowing for a more comprehensive understanding of their impact on grammar learning outcomes for TOEFL preparation. The results of students' responses are as follows;

Table 5. Students' Perceptions of Digital Media Interventions on Grammar Mastery for TOEFL Preparation

No	Statements	Responses N = 41				Mean	Inter-pretation
		SA	A	D	SD		
1	I find that my understanding of grammar materials for TOEFL improves more using YouTube videos compared to traditional textbook materials.	30 (73.17%)	13 (31.71%)	2 (4.88%)	0 (0%)	3.98	SA
2	I find that the use of Quizizz improves my motivation to do grammar exercises	28 (68.29%)	13 (70.73%)	0 (0%)	0 (0%)	3.68	SA
3	I feel more confident applying the grammar structure in doing exercises after watching videos on Youtube	35 (85.37%)	5 (12.19%)	1 (2.44%)	0 (0%)	3.88	SA
4	I feel more motivated to learn grammar for TOEFL with the collaboration of YouTube and Quizizz platforms	35 (85.37%)	3 (7.32%)	2 (4.88%)	0 (0%)	3.68	SA
5	The use of YouTube videos and Quizizz helps me remember the grammar structure or grammar concepts for TOEFL	30 (73.17%)	10 (24.39%)	1 (2.44%)	0 (0%)	3.68	SA
6	The use of YouTube videos and Quizizz quizzes is effective in improving my grammar mastery for TOEFL preparation	35 (85.37%)	6 (14.63%)	0 (0%)	0 (0%)	3.85	SA
7	The use of YouTube videos and Quizizz enhances my engagement during	35 (85.37%)	3 (7.32%)	2 (4.88%)	0 (0%)	3.68	SA



grammar learning for TOEFL							
8	Quizizz helps me to know my competence in grammar after doing the exercises	30 (73.17%)	10 (24.39%)	1 (2.44%)	0 (0%)	3.68	SA
9	Quizizz is more useful than paper-based exercises	28 (68.29%)	13 (70.73%)	0 (0%)	0 (0%)	3.68	SA
10	YouTube videos help me review grammar learning materials for TOEFL	35 (85.37%)	3 (7.32%)	2 (4.88%)	0 (0%)	3.68	SA

Notes: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

As shown in Table 5, it is evident that students perceived the interventions using digital media, specifically YouTube videos and Quizizz quizzes, as highly beneficial for enhancing their grammar mastery in preparation for the TOEFL exam. The majority of respondents strongly agreed that their understanding of grammar materials improved more effectively with YouTube videos compared to traditional textbook materials. Additionally, they expressed high levels of motivation, confidence, engagement, and effectiveness in applying grammar structures, doing exercises, and remembering grammar concepts when utilizing both YouTube and Quizizz platforms collaboratively. These findings highlight the positive impact of digital media interventions on students' perceptions and experiences, indicating their effectiveness in facilitating grammar learning and preparation for the TOEFL exam.

The results demonstrate overwhelmingly positive perceptions among students regarding the effectiveness of digital media interventions, specifically YouTube videos and Quizizz quizzes, in enhancing their grammar mastery for TOEFL preparation. A large majority of students strongly agree that their understanding of grammar materials improves more using YouTube videos compared to traditional textbook materials. Additionally, students express high levels of motivation, confidence, and effectiveness in applying grammar structures, doing exercises, and remembering grammar concepts when utilizing both YouTube and Quizizz platforms collaboratively.

These findings suggest that the integration of digital media, particularly YouTube videos and Quizizz quizzes, plays a crucial role in enhancing students' grammar mastery for TOEFL preparation. The strong agreement among students regarding the effectiveness of digital media interventions indicates that these platforms offer engaging, accessible, and effective learning resources that cater to diverse learning styles. The positive perceptions of motivation, confidence, and effectiveness further underscore the value of incorporating multimedia resources and interactive platforms in educational settings (Lijo et al., 2024), particularly in teaching English grammar for TOEFL.

The positive perceptions of students regarding the effectiveness of digital media interventions can be attributed to several factors. Firstly, YouTube videos may offer authentic and engaging content that presents grammar concepts in visually appealing and accessible formats. Research has shown that multimedia resources like videos can enhance comprehension and retention of complex concepts (Girón-García & Fortanet-Gómez, 2023). Additionally, Quizizz quizzes provide interactive and gamified learning experiences that reinforce grammar concepts and motivate students to actively engage with the material (Pratiwi & Waluyo, 2022). The collaborative use of YouTube and Quizizz platforms allows for a comprehensive and dynamic learning environment that caters to student's individual needs and preferences.

These findings align with previous research that has demonstrated the students' positive perception of digital media interventions on grammar learning and English learning outcomes. Studies by Cabrera et al. (2018), Asifayanti et al. (2021), Tahmina (2023), and Arsyad et al. (2024) have also shown that multimedia resources and gamification strategies, such as YouTube videos and interactive quizzes, not only can effectively enhance grammar mastery but also motivation and confidence, in various educational contexts. The consistency of these findings across different studies underscores the robustness and generalizability of the effectiveness of digital media interventions in improving grammar learning outcomes.

In conclusion, the overwhelmingly positive perceptions of students regarding the effectiveness of digital media interventions, as evidenced by the findings from Table 5, highlight the significant role of platforms like YouTube and Quizizz in enhancing grammar mastery for TOEFL preparation. These findings underscore the importance of leveraging multimedia resources and interactive platforms in educational settings to facilitate engaging and effective grammar instruction. Moreover, the alignment of these findings with previous research further strengthens the evidence supporting the efficacy of digital media interventions in enhancing grammar learning outcomes.

#### 4. Conclusion

After carrying out this research, the research findings demonstrate a significant enhancement in students' grammar proficiency following interventions utilizing YouTube videos and Quizizz quizzes for TOEFL preparation at the Bengkulu Health Polytechnic. The positive perceptions of students regarding the effectiveness of digital media interventions underscore the crucial role of multimedia resources and interactive platforms in facilitating engaging and effective grammar instruction. The consistent improvement in grammar mastery, coupled with students' high levels of motivation, confidence, and effectiveness in applying grammar structures, reflects the efficacy of leveraging digital media in educational settings. These findings align with previous research, emphasizing the robustness and generalizability of the positive effects of digital media interventions on grammar learning outcomes. Overall, the study highlights the importance of integrating platforms like YouTube and Quizizz into TOEFL preparation courses to enhance grammar mastery and improve learning outcomes in the digital era.

However, this research also has several weaknesses that need to be addressed. The research utilized a one-group pre-test-post-test design with five meetings for interventions without a control group, limiting the ability to establish causal relationships and control for potential confounding variables. To address these weaknesses, future research could consider employing a randomized controlled trial design with a larger sample size and a longer intervention period to provide more robust evidence of the effectiveness of digital media in enhancing grammar proficiency for TOEFL preparation.

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