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The Effect of Digital Media on Grammar Mastery for TOEFL ITP Preparation

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Abstract

In this digital era, many scholars have reported the effectiveness of digital educational platforms in teaching English grammar. However, little research has utilized digital media, such as YouTube videos and the Quizizz platform, to teach grammar for TOEFL ITP preparation. To fill this gap, this pre-experimental one-group pre-test-post-test design was used to measure changes from one point in time before the intervention to one point in time after the intervention to 41 students' grammar mastery for TOEFL ITP Preparation using digital media (YouTube videos and Quizizz) at the Registration Certificate for Nutrition program at the Bengkulu Health Polytechnic of the Ministry of Health. The data were obtained from the grammar tests in the pre-test and post-test and the students' perception questionnaire. Since the pre-test and post-test data were not normally distributed, a non-parametric Wilcoxon test using the SPSS 21 package version was used to analyze them, and data from the questionnaire were analyzed using descriptive statistics. The result indicates that students' grammar mastery improved after giving interventions using these digital media. Moreover, data from the questionnaire demonstrate that students' understanding of grammar concepts improved and led to high levels of motivation, confidence, and engagement after the interventions. 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 that instructors incorporate these media into TOEFL ITP preparation courses to boost students' grammar mastery in the digital era.

Keywords: educational digital media, grammar mastery, TOEFL ITP Preparation, Quizizz, YouTube

Introduction

In Indonesia, public higher education institutions require students to take the TOEFL test before graduation. The types of tests usually administered are TOEFL ITP or TOEFL Prediction, depending on the policy of each institution. These test results become an important requirement for fulfilling graduation criteria and also evaluate students' abilities to understand and use English in academic and professional contexts (Fitria, 2021). The TOEFL scores achieved are also widely recognized by certain universities if students wish to pursue a Master's or Doctoral degree in Indonesia, as well as by companies that require English proficiency in Indonesia. Additionally, having a good TOEFL score can potentially enhance students' chances of obtaining scholarships and international job opportunities, thereby expanding their future career prospects.

One of the key components of the TOEFL ITP and Prediction tests is grammar accuracy, provided in the Structure and Written Expression section, besides the listening and reading sections. 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 tested in TOEFL.

However, many students encounter significant challenges when mastering grammar for the TOEFL ITP or Prediction due to the complexity of grammar rules, (Fitria, 2021; Jasrial et al., 2022). Furthermore, students struggle to understand written grammar material due to differences in learning styles. Research has shown that learning styles can significantly impact students' comprehension and engagement in language learning (El-Sabagh, 2021; Hu et al., 2021). Additionally, students' interest in learning grammar is low because instructors do not use visual, audio-visual, or interactive media during grammar instruction (Arsyad et al., 2024; Habibah, 2019). Moreover, students struggle to understand and apply abstract grammar concepts (Montes et al., 2020). Lastly, grammar materials for TOEFL are more complicated and challenging. Pan et al. (2021) claim that it underscores the necessity of using supporting media, such as game-based learning, to enhance learning and retention. Consequently, this decreases students' performance and confidence in grammar instruction for TOEFL ITP preparation, and this influences their performance

in doing structure and Written Expression sections in the TOEFL ITP test. Without diverse teaching methods and learning media, students cannot connect theoretical knowledge with practical application, further hindering their ability to master grammar (Effendi et al., 2017; Mart, 2013).

In response to these challenges, teaching English grammar can benefit from using 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 of 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 at different levels of education, such as junior high schools, senior high schools, and university students. However, to the best of the authors' knowledge, previous scholars have never implemented integrating YouTube and Quizizz to teach grammar for TOEFL ITP preparation. Integrating these two media into grammar teaching for TOEFL is an innovative educational strategy that caters to diverse student needs in learning styles, motivation, and engagement in the learning process. This is because digital platforms like YouTube and Quizizz have emerged as innovative solutions to enhance grammar learning for TOEFL ITP preparation. YouTube offers various 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 students face in mastering grammar for the TOEFL. By exploring the effectiveness of YouTube and Quizizz in enhancing grammar mastery and improving TOEFL scores, this research provides valuable insights and practical recommendations for educators and learners seeking to optimize their TOEFL ITP 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 ITP Preparation before and after digital media interventions?

Research Methodology

This research used a quantitative approach with a pre-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, and the dependent variable was grammar mastery for TOEFL ITP preparation. This design was chosen for this case because it directly measured the impact of digital media interventions on students' grammar ability by comparing their performance from one time before the intervention to one point after the intervention. Also, this design was selected for its focus on immediate effects, allowing for a direct evaluation of changes that occur following the implementation of digital media interventions. Thus, this design is crucial for assessing the immediate benefits of the intervention, providing valuable insights into its effectiveness without the complexity and resource requirements of more elaborate experimental designs.

This research involved a TOEFL ITP preparation class for the Registration Certificate for Nutrition Program students at the Bengkulu Health Polytechnic of the Ministry of Health. Forty-one students, ranging in age from 20 to 21, were involved in this research. This pre-experimental research was conducted in seven meetings: five meetings for interventions and two meetings for pre-test and post-test. Each meeting consisted of 120 minutes. The number of these meetings in grammar instruction, particularly TOEFL ITP preparation, could provide a strong structure assessment of the effectiveness of using digital media. An article by Alessandri et al. ((2017) shows that Latent Curve Model (LCM) effectively evaluated an intervention program with two

waves of data. Thus, in grammar instruction, this means the changes in students' understanding and ability could be analyzed, and the observed improvement was caused by interventions, not because of other factors. In implementing these digital media, 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 (<https://www.youtube.com/@Yantotanjung>) and Toefl Kampung Inggris Pare (<https://www.youtube.com/@toeflkampunginggrispare5426/featured>) channels. Second, the instructor provided more relevant examples and asked students to discuss the examples, whether they were wrong or not, and supported by their reasons. Lastly, the exercises were given to students through Quizizz, and they asked them to answer and provide their reasons for the answers. 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 Played Past Participles after Be, YouTube Base Form Verbs after online Modals, Singular and Plural Nouns, and Countable, Uncountable Nouns, and Adjectives and Adverbs			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, comprising 15 structured questions (1-15) and written expression questions (15-40). These questions were taken from the TOEFL book entitled Longman Introductory Course for the TOEFL test by Deborah Philips.

Moreover, a questionnaire was administered to students after they did the post-test to address students' perception of digital media intervention. 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 analyzed quantitatively. The data taken from the questionnaire were analyzed 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 calculating student's answers for each option in each item based on the weight score of each choice 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 – 2.50, and SD = 1.00 – 1.75). The items of this questionnaire were adapted by selecting and combining items from Permana et al. (2023) and Winda et al. (2023). Then, the content of the items was validated by two experts to treat the validity of this questionnaire. Then, experts' validation results were analyzed using Aiken's V Formula (Aiken, 1985). The results show the average score from the two experts is 3.5, indicating that overall, the items in the instrument received a reasonably good rating from both experts involved in the validation process. This suggests a strong consensus between the two experts regarding the relevance of these items to the construct or topic being measured by the instrument. Additionally, Test-retest reliability was used

to test the reliability of this questionnaire. It was administered two times at intervals of two weeks after the first one. The Pearson correlation matrix shows significant and strong correlations ($p < 0.01$) between the initial and retest measurements for all items in the questionnaire, indicating good Test-retest reliability.

In addition, the data taken from grammar tests were analyzed 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, so it can be concluded that the data were not normally distributed. (Supranto, 2000). Therefore, the data were analyzed using a nonparametric test, namely the Wilcoxon test.

Findings and Discussion

Findings

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 grammar mastery – Pre-test of grammar mastery	of	Negative Ranks	0 ^a	.00	.00
		Positive Ranks	41 ^a	21.00	861.00
	of	Ties	0 ^c		
		Total	41		

a. Post-test of grammar mastery < pre-test of grammar mastery

b. Post-test of grammar mastery > Pre-test of grammar mastery

c. 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 ^a
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 ITP 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 ITP Preparation at the Bengkulu Health Polytechnic. Moreover, the effectiveness of these two media was also supported by students' perceptions. Their 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	My understanding of grammar materials for TOEFL improves more when I use YouTube videos than traditional textbook materials.	30 (73.17%)	13 (31.71%)	2 (4.88%)	0 (0%)	3.98	SA
2	Using 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 when doing exercises after	35 (85.37%)	5 (12.19%)	1 (2.44%)	0 (0%)	3.88	SA

	watching videos on YouTube.							
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	Using YouTube videos and Quizizz helps me remember the grammar structure or 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 ITP Preparation.	35 (85.37%)	6 (14.63%)	0 (0%)	0 (0%)	3.85	SA	
7	Using YouTube videos and quizzes enhances my engagement in learning grammar for TOEFL.	35 (85.37%)	3 (7.32%)	2 (4.88%)	0 (0%)	3.68	SA	
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 valuable 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. Most respondents strongly agreed that their understanding of grammar materials improved more effectively with YouTube videos than with 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.

Discussion

The research findings highlight a significant enhancement in students' grammar mastery 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 understandable 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 mastery.

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 online.

The effectiveness of these digital media, such as YouTube videos and quizzes, in grammar instruction for TOEFL ITP preparation can be highly beneficial for students. Many students strongly agree that their understanding of grammar materials improves significantly when they use YouTube videos compared to traditional textbook materials. Additionally, they express high levels of motivation, confidence, and effectiveness in applying grammar structures, completing exercises, and retaining grammar concepts when using both YouTube and Quizizz platforms collaboratively. Furthermore, students strongly agree that these platforms offer engaging, accessible, and effective learning resources that cater to diverse learning styles. Thus, the positive perceptions of motivation, confidence, and effectiveness further highlight the value of incorporating multimedia resources and interactive platforms in educational settings (Lijo et al., 2024), particularly in teaching English grammar for TOEFL.

Students' positive perceptions 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 engage with the material actively (Pratiwi & Waluyo, 2022). The collaborative use of YouTube and Quizizz platforms allows for a comprehensive and dynamic learning environment catering to students' needs and preferences.

These findings align with previous research demonstrating 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, can effectively enhance grammar mastery, 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 ITP Preparation. These findings underscore the importance of leveraging multimedia resources and interactive platforms in educational settings to facilitate engaging and effective grammar instruction. Moreover, aligning these findings with previous research further strengthens the evidence supporting the efficacy of digital media interventions in enhancing grammar learning outcomes.

Conclusion and Suggestion

After carrying out this research, the findings demonstrate a significant enhancement in students' grammar mastery following interventions utilizing YouTube videos and Quizizz quizzes for TOEFL ITP 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 ITP 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 mastery for TOEFL ITP Preparation.

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