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The Effect of Using Electronic Learning Media on The Effectiveness of Student Learning

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Abstract
The effectiveness of student learning during e-learning still faces various obstacles, such as unequal access to technology, the readiness of teachers and students, and the quality of interaction in the online process. The use of digital platforms such as Google Classroom, Zoom, and WhatsApp Group is increasing, but the optimal impact has not always been achieved. This study aims to determine (1) the description of the use of electronic learning media by junior high school students in Yogyakarta, (2) the description of the perceived effectiveness of online learning, and (3) the effect of the use of electronic learning media on learning effectiveness. This study used a correlational quantitative method with 312 students as samples taken by stratified random sampling. Data were collected through an online questionnaire with high validity and reliability (Cronbach's Alpha = 0.88). Data analysis was performed descriptively and inferentially using Pearson's correlation and multiple linear regression. The results show a significant positive effect of the use of electronic learning media on learning effectiveness with a correlation coefficient of $r = 0.68$ ($p < 0.01$). The implications of these results emphasize the importance of improving the digital literacy of students and teachers, supporting technological infrastructure, and innovating online and blended learning so that online learning becomes more effective and enjoyable.

Keywords: Electronic Learning Media, Learning Effectiveness, E-Learning, Learning Motivation, Family Support

Introduction

Education is the main foundation in developing superior human resources who are adaptive and creative in facing global challenges (Ministry of National Education, 2003) [4]. In recent decades, the educational paradigm has shifted from traditional systems to modern learning based on information and communication technology (ICT), which encourages a more effective and flexible teaching and learning process (Rusman & others, 2011) [11]. This transformation was accelerated by the COVID-19 pandemic, which forced the education sector to adapt to online learning models (Abidin *et al*., 2020) [1]. The Indonesian government established a policy of learning from home through the Minister of Education and Culture Circular Letter No. 4 of 2020 to maintain the continuity of education during the health crisis (Ministry of Education and Culture of the Republic of Indonesia, 2020).

The effectiveness of learning can be defined as the level of achievement of learning objectives, active student participation, understanding of material, and satisfaction and motivation in the learning process (Dewi, 2020) [5]. In online learning, electronic learning media such as Google Classroom, WhatsApp Group, Zoom, and YouTube Edu are the main channels for delivering material and interaction (Belawati, 2019) [3]. However, the implementation of online learning is not without challenges, especially technological inequality, teacher and student readiness, and family and learning environment support, which play an important role in optimal learning outcomes (Prianto & Putri, 2017) [9].

The effectiveness of online learning varies greatly depending on the use of electronic learning media, which includes ease of access, interaction facilities, and content quality (Fitriyani *et al*., 2020). Student learning motivation is also a key variable that mediates learning effectiveness, while family support and teacher readiness are crucial supporting factors for the success of online learning (Prawira, 2014; Sardiman, 2011; Dewi, 2020) [8, 12, 5].

Previous studies have shown a positive correlation between electronic learning media and student learning motivation and academic achievement, but there are still few studies that comprehensively combine supporting variables (Rachim, 2020) [10]. Therefore, this study integrates at least four main variables, namely the use of electronic learning media, learning motivation,

family support, and teacher readiness, to comprehensively examine their influence on learning effectiveness.

This research was conducted in a number of junior high schools in the city of Yogyakarta with the hope of providing empirical insights and practical recommendations for schools and policy makers to optimize online and blended learning, thereby improving the quality of education in the digital age.

Method

This study uses a quantitative approach with a correlational survey design that aims to examine the effect of using electronic learning media on the effectiveness of student learning. The research population consists of all seventh and eighth grade students in five public and private junior high schools in Yogyakarta City in the 2024/2025 academic year who have undergone online and blended learning, with a total of approximately 2,000 students. A sample of 312 students was taken using stratified random sampling with representative proportions based on school type and level of technology access.

Data collection was conducted using an online questionnaire based on Google Forms consisting of four main variables, namely: (1) the use of electronic learning media measured by frequency of use, platform variety, ease of access, material quality, intensity of use, and interactivity; (2) learning motivation covering aspects of interest, enthusiasm, and discipline during online learning; (3) family support, which includes attention, supervision, and learning facilities at home; and (4) teacher readiness, which includes digital competence, creativity in delivering material, and responsiveness to student constraints. Each question item was measured on a scale.

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The content validity of the instrument was tested by experts in education and information technology, while reliability was tested using Cronbach's Alpha with a consistency value between 0.88 and 0.92, indicating that the instrument was excellent and consistent. In addition to quantitative data, semi-structured interviews were conducted with 10 teachers and 15 parents to provide supporting data and clarify the context of online learning.

The data were analyzed descriptively (mean, percentage) to describe the characteristics of the variables and inferentially using Pearson's correlation test to test the relationship between variables and multiple linear regression to measure the simultaneous effect of independent variables on learning effectiveness.

Findings

The results showed that out of 312 student respondents, the use of electronic learning media was dominated by Google Classroom at 82.4%, followed by WhatsApp Group at 77.2%, and Zoom Meeting 68.3%, YouTube Edu 59.9%, and Microsoft Teams 39.7%. The average media usage score was 83.02 out of 100, falling into the excellent category with an achievement of 90.49%. This shows the high intensity and variety of electronic media usage in online learning.

Table 1: Research survey results, 2025

Media	User Frequency	Percentage (%)
Google Classroom	257	82,4 %
WhatsApp Group	241	77,2 %
Zoom Meeting	213	68,3 %
YouTube Edu	187	59,9 %
Microsoft Teams	124	39,7 %

The details of the distribution of scores for the use of electronic learning media are as follows:

Table 2: The Details of research survey results, 2025

Score Range	Frequency (F)	Average (X)	Total (F×X)
75-77	38	38	2888
78-80	67	67	5293
81-83	72	72	5904
84-86	89	89	7565
87-89	33	33	2904
90-92	13	13	1183
Total	312	-	25.737

The average learning motivation score was 79.85 (good category). Most students showed a fairly high enthusiasm for learning, although some reported learning fatigue due to the long duration of online learning. The support provided by parents received an average score of 75.60, which is in the good category, but interviews revealed that parents had limited time to assist their children with their studies. Teachers' readiness to conduct online learning achieved an average score of 80.25, with many teachers being responsive and creative in their use of media, although further digital training is still needed.

The effectiveness of learning, measured through understanding of the material, active participation, evaluation results, motivation, and student satisfaction, received an average score of 80.15 (good category). As many as 20% of students experienced technical difficulties and boredom during online learning.

Pearson's correlation analysis between the use of electronic learning media and learning effectiveness showed a value of $r = 0.68$ ($p = 0.000$), which is a very strong and positive relationship. Multiple linear regression indicates that the variables of media use, learning motivation, family support, and teacher readiness together contribute 52% to the variation in learning effectiveness ($R^2 = 0.52$; $F = 45.32$; $p < 0.001$), with learning motivation and teacher readiness as the most dominant predictors partially.

Table 3: Pearson Correlation Test Results

Variable	Coefficient r	p-value	Interpretation
The Use of Electronic Media and Learning Effectiveness	0,68	0,000	Very strong

The interview data provides a concrete picture, with teachers stating:

> "Platforms such as Google Classroom and Kahoot really increase student participation, especially through video materials and interactive quizzes."

Meanwhile, parents said:

> "My busy work schedule sometimes makes it difficult for me to accompany my children during online learning, which affects their motivation to learn."

In addition, the main obstacles are limited devices, uneven internet connectivity, and suboptimal teacher training.

Discussion

This study shows that the use of electronic learning media by junior high school students in Yogyakarta is very diverse and intensive. Platforms such as Google Classroom and WhatsApp Group are the dominant media due to their ease of access and interactive features that help enrich the online learning process. This is in line with previous studies that confirm the use of electronic media can increase student motivation and learning outcomes (Fitriyani *et al*., 2020; Rachim, 2020 [10]).

However, there are significant challenges that need to be considered, such as disparities in access to technological devices and The uneven quality of internet access among students. This situation also affects the readiness of teachers and the varying levels of family support, with some teachers still needing more in-depth digital competency training and parents experiencing time constraints in supporting their children's learning process at home. These findings are consistent with those of Dewi (2020) [5] and Prianto & Putri (2017) [9], which emphasize the important role of social support and technological infrastructure.

Student motivation is a mediating factor that greatly determines the effectiveness of the online learning process. Students with high motivation tend to participate more actively, understand the material well, and achieve optimal learning outcomes. However, long periods of online learning can also cause boredom, which can reduce motivation to learn. Therefore, the development of a blended learning model that combines online and face-to-face methods is highly recommended to overcome boredom and increase social interaction among students (Asriadi, 2021) [2].

Family support, particularly guidance and the provision of adequate learning facilities, has a significant influence on the success of online learning at home. This is reinforced by the interview results, which show that parents' time constraints affect students' learning motivation. Therefore, the role of parents needs to be strengthened through empowerment and good communication with the school.

Teacher readiness plays a key role in the effective use of electronic learning media. Teachers who have good digital competence and are able to present material creatively can increase student interest and activity. Continuous training and professional development should be a priority for schools and the government to optimize the quality of online learning.

Overall, the results of this study affirm previous findings and prove that intensive and varied use of electronic learning media can significantly improve learning effectiveness. However, socioeconomic and technical challenges such as access to technology and family support must be resolved synergistically so that online learning can be maximized and inclusive.

Conclusion

Based on the results of the study, the use of electronic learning media by junior high school students in Yogyakarta is already very good, especially with the dominance of Google Classroom. The effectiveness of online learning in general is also good, although there are still problems such as decreased learning motivation and boredom due to long periods of online learning. The use of this media has been proven to have a positive and significant effect on student learning effectiveness. Of all the factors, learning motivation and teacher readiness play the most important roles. However, there are obstacles such as limited technological tools and varying levels of family support.

To improve online learning, there are several practical things that schools and policymakers can do. First, teachers need to receive regular ICT training so that they can use electronic learning media more proficiently and creatively. Second, local governments and schools must invest more in providing adequate technological facilities and smooth internet access, especially for underprivileged students. Third, the role of families must be strengthened so that parents can better support their children's learning. Finally, a learning model that combines online and face-to-face learning (blended learning) is recommended to reduce boredom and make learning more interesting.

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