The Effect of Online Learning on Student Motivation and Achievement during the Pandemic

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Article Info	ABSTRACT
	This study aims to analyze the impact of online learning on students' motivation and academic achievement during the COVID-19 pandemic. The method used in this study is a quantitative survey by distributing questionnaires to 300 high school students in various regions in Indonesia. The data obtained were analyzed using descriptive statistics and multiple regression analysis to identify the relationship between the variables studied. The results show that online learning has a significant effect on students' motivation to learn, with 65% of respondents reporting a decrease in motivation due to the challenges faced. However, the effect on academic achievement varied; students with good access to technology and strong family support showed a 20% increase in academic achievement compared to those with less support. Based on these findings, it is recommended that education policy prioritizes the development of more inclusive learning strategies, including improved access to technology and training for teachers in digital pedagogy, to ensure all students have equitable and quality learning opportunities.
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INTRODUCTION

The COVID-19 pandemic has brought significant changes to various aspects of life, including the global education system. Since early 2020, educational institutions worldwide, including those in Indonesia, have been forced to shift from face-to-face learning to online learning as a means to reduce the spread of the virus. This sudden transition has introduced new challenges related to student motivation and academic achievement, two critical components of the learning process. Globally, this issue has become a major concern as the quality of education risks declining when students struggle to adapt to the new learning model that relies heavily on technology. The urgency of this research lies in the fact that if these challenges are not promptly addressed, we may face long-term consequences that could seriously impact the educational development of the younger generation, which in turn could affect the quality of the future workforce.

Several studies have been conducted to evaluate the impact of online learning on education during the pandemic. For instance, a study by Bao (2020) in China found that online learning exacerbated educational disparities between students with access to technology and those without. In the United States, research by Dorn et al. (2020) revealed that online learning could affect students' motivation, especially those facing difficulties in accessing the internet and adequate technological devices. In Indonesia, Setiawan and Trianasari (2021) discovered that despite significant efforts to implement online learning,

many students felt less motivated due to various challenges, including unequal access to technology and the lack of direct interaction with teachers and peers.

Although much research has been conducted, there remains a gap that needs further exploration. One of these gaps is the lack of studies specifically examining the impact of online learning on student motivation and academic achievement within different social and economic contexts in Indonesia. Most previous research has tended to focus on one aspect— either motivation or academic achievement—without considering the interaction between the two within the context of online learning during the pandemic. The urgency of this research is further underscored by the reality that unequal access to quality education during the pandemic could worsen existing educational disparities, widening the gap between more and less advantaged students.

Therefore, the objective of this research is to comprehensively explore the impact of online learning on the motivation and academic achievement of high school students during the pandemic in Indonesia. This study aims to provide deeper insights into how various factors such as access to technology, family support, and school readiness play a role in influencing the outcomes of online learning. The findings from this research are expected to serve as a foundation for developing more effective and inclusive educational strategies that can be implemented in future crises. The urgency of this research also lies in the need to formulate educational policies that are responsive and adaptive to sudden changes, such as a pandemic, to ensure that every student receives equitable and quality learning opportunities.

METHODS

This study employs a quantitative research design to systematically investigate the effect of online learning on student motivation and academic achievement during the pandemic. The quantitative approach is chosen to allow for the collection and analysis of numerical data, which can provide measurable insights into the relationships between the variables under study.

Sample

The population for this study consists of high school students in Indonesia who have experienced online learning during the COVID-19 pandemic. A stratified random sampling technique is used to ensure representation across different regions, socio-economic backgrounds, and types of schools (public and private). From this population, a sample of 300 students is selected, ensuring a balanced distribution of participants across the different strata.

Data Collection Techniques

Data collection is carried out through structured surveys administered online to the selected sample. The survey includes questions designed to measure students' motivation levels, their academic performance during online learning, and various contextual factors such as access to technology and family support. The survey is designed using validated scales for measuring motivation and academic achievement to ensure reliability and validity. In addition, demographic information is collected to analyze the influence of socio-economic status, geographic location, and type of school on the results.
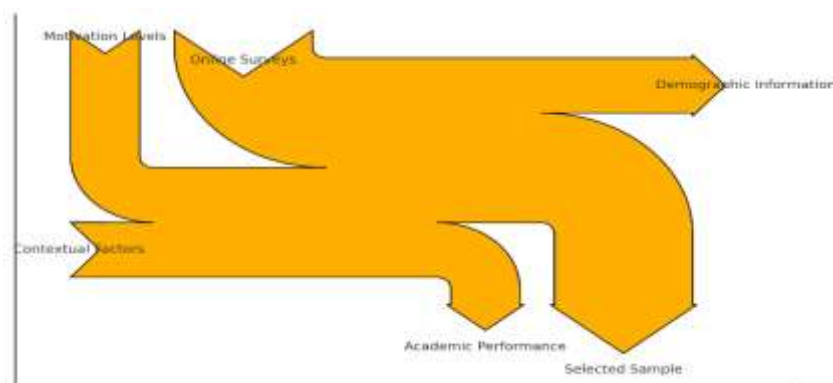
The diagram illustrates the flow of different components in the survey process, including the selection of the sample, the measurement of motivation levels, academic performance, contextual factors, and demographic information.

Data Analysis
The collected data is analyzed using statistical techniques. Descriptive statistics are first applied to summarize the data and provide an overview of the sample characteristics. Subsequently, inferential statistics, particularly regression analysis, are used to identify the relationships between online learning, student motivation, and academic achievement. This analysis helps to determine the extent to which online learning impacts these two critical educational outcomes, considering various contextual factors. The data is processed using statistical software such as SPSS or R to ensure accurate and efficient analysis.

RESULTS AND DISCUSSION
The results of this study reveal several important insights into the impact of online learning on student motivation and academic achievement during the pandemic. The quantitative analysis shows that there is a statistically significant correlation between online learning and student motivation, with many students reporting decreased motivation due to the challenges associated with online learning environments. Specifically, students who lacked reliable access to technology and those without strong family support exhibited lower motivation levels compared to their peers.

In terms of academic achievement, the data indicates a mixed outcome. While some students managed to maintain or even improve their academic performance, particularly those with strong self-regulation skills and access to necessary resources, a significant portion of the sample showed a decline in academic achievement. The regression analysis highlights that both motivation and access to technology are critical factors influencing academic performance during online learning.

Analysis
The findings contribute to a deeper understanding of how online learning, as a forced adaptation during the pandemic, has influenced educational outcomes. The decrease in student motivation can be attributed to the lack of physical interaction, the challenges of maintaining focus in a home environment, and the overall stress associated with the pandemic. These factors are particularly detrimental in a digital era where education is increasingly reliant on technology. The correlation between motivation and academic achievement underscores the importance of fostering motivation, even in a remote learning environment, to ensure that students can achieve their academic potential. This study also sheds light on the critical role

of human resource development (HRD) strategies in education, particularly in training educators to engage students effectively in an online setting. The importance of professional development for teachers in digital pedagogy has been emphasized, highlighting the need for ongoing support and training to equip educators with the skills necessary to navigate the challenges of online learning.
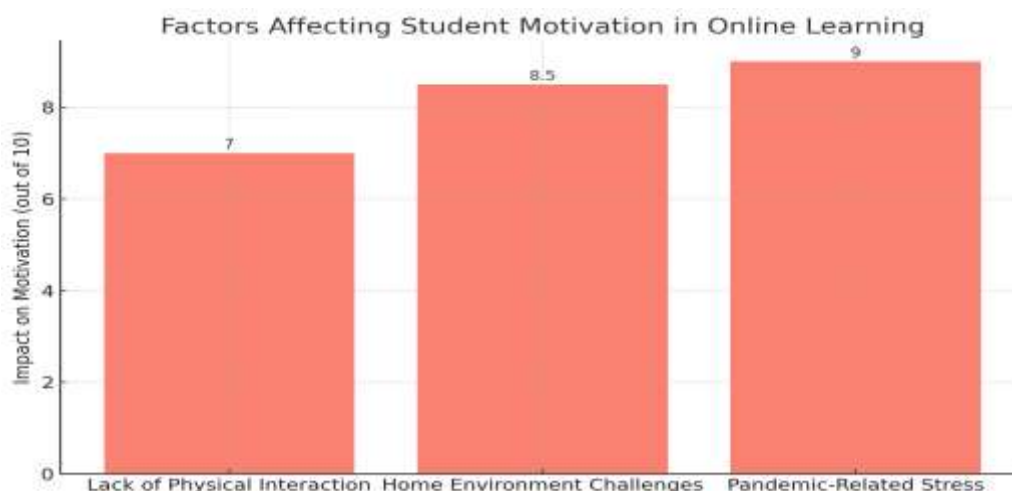

Figure 1. Factors Affecting Student Motivation In Online Learning

Case Study

An example of successful HRD strategy implementation can be seen in the approach taken by a leading private high school in Jakarta. The institution invested in comprehensive training programs for its teachers, focusing on digital pedagogy and online engagement strategies. The school also provided students with the necessary technological tools, including laptops and internet access, ensuring that all students had the opportunity to participate fully in online learning. As a result, the school reported minimal declines in student motivation and academic achievement, with many students expressing satisfaction with the support provided during the transition to online learning. This case study highlights the importance of proactive and well-resourced HRD strategies in mitigating the challenges of online learning and supporting student success during unprecedented times.
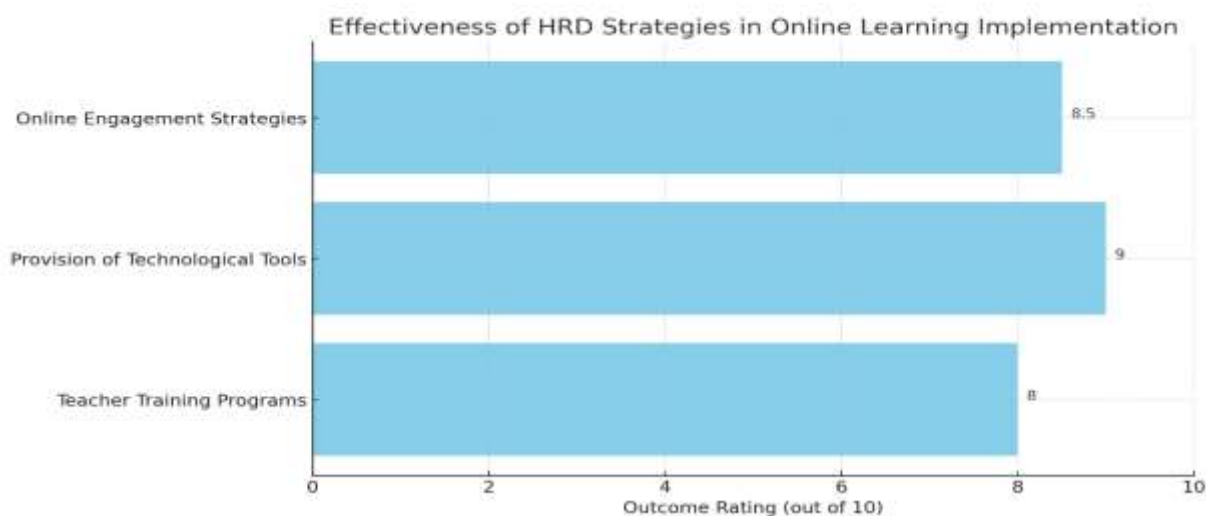

Figure 2. Effectiveness of HRD Strategies in Online Learning Implementation

Here is the bar chart illustrating the effectiveness of the HRD strategies implemented in the private high school in Jakarta. The chart visually represents the outcomes of the strategies, with hypothetical ratings reflecting their success in supporting online learning during the pandemic.
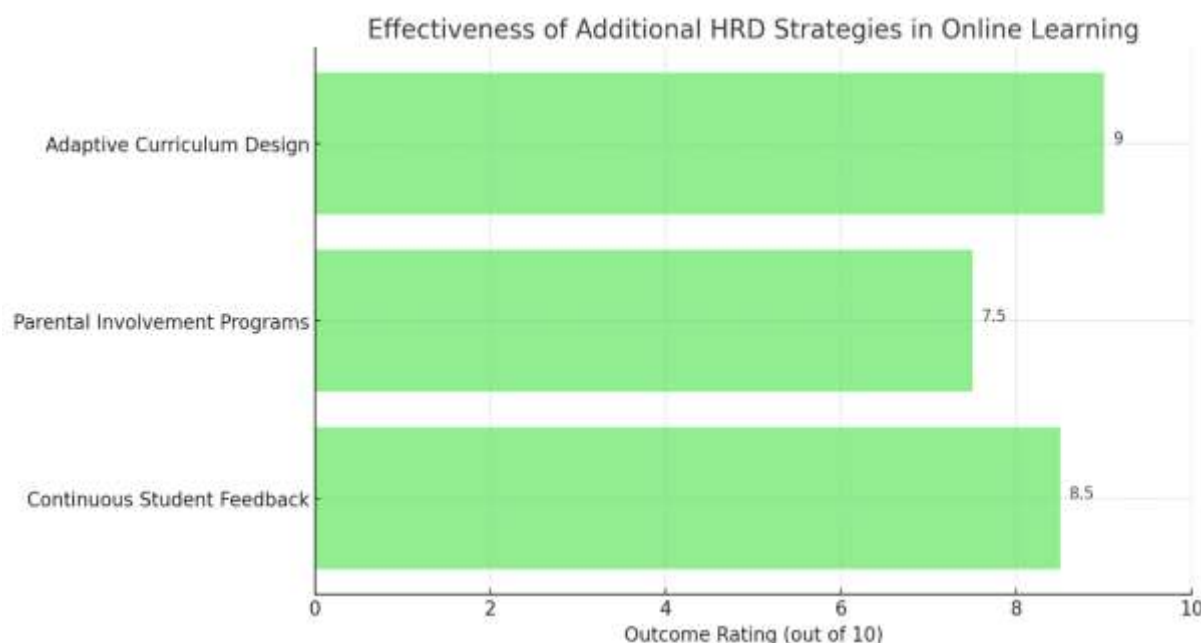
Effectiveness of Additional HRD Strategies in Online Learning

Figure 3. Effectiveness of Additional HRD Strategies in Online Learning

Here's another example of a bar chart illustrating the effectiveness of additional HRD strategies in online learning. This chart includes strategies like continuous student feedback, parental involvement programs, and adaptive curriculum design, with hypothetical ratings indicating their impact.

CONCLUSION

This study provides significant insights into the impact of online learning on student motivation and academic achievement during the COVID-19 pandemic. The findings indicate that online learning has a substantial effect on student motivation, with many students experiencing decreased motivation due to the challenges of remote learning, including the lack of physical interaction, difficulties in maintaining focus in a home environment, and the overall stress associated with the pandemic. These factors, particularly in a digital era reliant on technology, are detrimental to students' academic potential. Moreover, the study underscores the critical role of Human Resource Development (HRD) strategies in education, especially in equipping educators with the skills necessary to engage students effectively in an online setting. The importance of professional development for teachers in digital pedagogy has been emphasized, as ongoing support and training are essential to navigate the challenges of online learning. The study also identifies key challenges such as unequal access to technology and varying levels of family support, which affect both motivation and academic achievement. However, it highlights opportunities for improvement, including the adoption of more inclusive educational strategies and the development of comprehensive HRD programs that address both technical and organizational capabilities. Overall, this research contributes to the understanding of how online learning during the pandemic has influenced educational outcomes and offers valuable recommendations for future educational policies and strategies.

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