The Influence of Educational Online Games on Student Learning Motivation

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Abstract.
Online games use multimedia that is made as attractive as possible so that players get a batik satisfaction and use internet access. The use of online games has the potential to influence the motivation of students in their pursuit of learning. This study aims to determine and analyze online games' influence on student learning motivation at SD Muhammadiyah 1 Waru, Sidoarjo Regency. The type of research used is quantitative. Data collection techniques use questionnaires and documentation of students. The results of research that has been conducted show 1) Online games affect learning motivation in students; 2) The application of a comprehensive technology learning process is one alternative strategy to deal with students who have online game addiction; 3) Based on the results of research on children, it can be seen that a) children spend 15% of the time playing the Internet for 30 minutes, then increase by 25% for 2 to 3 hours in one day; b) 60% of children play the Internet for 5 hours per day or more than 5 hours during school holidays. Based on the findings of a simple linear regression test, it was found that the r-count has a significance level of 5%, which is 0.703 > 0.444, and the r-count > the r-table. Thus, Ha believes that online games influence grade students' motivation to learn at SD Muhammadiyah 1 Waru Kabupaten Sidoarjo is acceptable. Hypothesis tests show a significant effect of educational online games on learning motivation in grade 3, 4, and 5 students of SD Muhammadiyah 1 Waru.

A. INTRODUCTION
The Covid 19 pandemic has hit various countries, including Indonesia, one of the countries affected by the spread of the Covid 19 virus. Different methods have been implemented measures to mitigate the transmission of the SARS-CoV-2 virus. One potential application of school education is the substitution of traditional face-to-face teaching and learning methods inside the school setting with online learning platforms, therefore enabling all students to engage in remote educational activities (Wardah & Farisia, 2021; Jamila et al., 2021; Singh et al., 2021).

The subject under discussion pertains to the circular letter issued by the Ministry of Education and Culture, specifically Number 4 of 2020. This circular addresses the implementation of education policies during the emergency period of the Covid-19 outbreak, which was issued on March 24,
As per the directive, it is anticipated that all students will engage in remote learning from their respective homes, utilising an online or web-based platform (Aripin, 2021).

The introduction of online schools has elicited a range of perspectives and opinions from members of the community, presenting both advantages and disadvantages (Darmayanti et al., 2022). The primary objective of this study is to elucidate the impact of internet gaming on pupils within the Covid-19 epidemic. The global number of internet users in 2022 was recorded at 4.95 billion individuals (Pahlevi, 2022).

In Indonesia, internet users reached 175.4 million in 2020 from the total population of all of Indonesia, namely 270.20 million (Statistics, 2020a). According to the statistics provided by the Central Bureau of Statistics for the year of 2020, there has been a notable 40% surge in internet use in Indonesia. The aforementioned circumstances may be attributed to the adoption of distant learning (PJJ) and remote work arrangements (WFH) (Statistics, 2020b).

The use of online learning refers to the pedagogical approach employed by educators to facilitate instruction and learning experiences for students, either in a synchronous or asynchronous manner, using internet-based platforms (Fahmalatif et al., 2021; Goddess, 2021; Pratomo et al., 2021; Mukarromah &; Wijayanti, 2021; Dewita et al., 2022). The learning method is done through video conferencing, e-learning, or distance learning (Haryati &; Nursaptini, 2021; Camilleri &; Camilleri, 2022).

Online learning is a new breakthrough for students and teachers that has never been applied before, so it takes some time to adapt (Hakiman, 2020; Saha et al., 2022). The use of online learning has both good and negative effects, including that students can receive material quickly and learn to evaluate their learning wherever they are, whether done at home or in other public places (Dhawan, 2020; Basar et al., 2021; Lubis &; Dasopang, 2021). While the negative impact is that most students abuse the online learning system that can be accessed by various things outside school learning on internet media, it can harm them (Hasanah et al., 2022; Anderson, 2022; Tang & Hew, 2022; Amri &; Rusman, 2023).

Technological developments in recent decades have been rapid and complex (Betz & Hein, 2023). The emergence of the Internet network brings significant changes to meet human needs, and the Internet can significantly influence cultural values (Nuriadin &; Harumike, 2021) since the Internet interests most people, who can be fascinated by it because it can be accessed in all parts of the world.

Based on survey data conducted by the Ministry of Communication and Information Technology of the Republic of Indonesia in 2018, as reported by eMarketer, it can be seen that internet users worldwide reached 3.6 billion. Indonesia is ranked among the top ten countries globally in terms of its substantial internet user population. The Internet makes
work and meeting needs more accessible and efficient, as well as the availability of various entertainment and online games (Levani et al., 2020).

Online games are played by many connected players so that there is direct communication and interaction through the internet network (Ependi et al., 2022). Students have an attraction to the Internet that makes students happier to play games than learn (Arsini et al., 2023). Engagement in online gaming has become a habitual practise in contemporary society. In addition to offering engaging interactive experiences, online games have the potential to induce addictive behaviours among players (Irawan &; Siska W., 2021). This is found when you play a game and then lose, and then you will try again until you win. If students in the learning process find this, it will undoubtedly bring up egocentric students and prioritize individualism.

The occurrence of online gaming addiction leads students to instinctively disengage from their immediate surroundings and see their social context as a virtual realm that offers entertainment and facilitates interactions with many others through the Internet (Novrialdy, 2019; Masyani &; Nusuary, 2021). Online games may have a beneficial influence by enhancing physical dexterity, cognitive capabilities, and fostering imaginative thinking among pupils (Hadisaputra, 2022). The adverse effects for students will be neglected activities or homework because they use their time to play games, which can reduce learning motivation (Firmansyah et al., 2021).

The driver of students' curiosity to learn or increase knowledge is part of learning motivation (Rahman, 2021). To achieve learning achievements, the important of understanding basis is a support for students to achieve the desired targets (Maryance et al., 2022). Learning motivation requires individual awareness of students who are influenced by each student's lifestyle (Arianti, 2019). Therefore, the development of existing technology should be able to help students increase knowledge balanced by high learning motivation through online games is a strategy or application to increase learning motivation.

Good learning achievement can be achieved through the motivation of students with high interest so that they can study seriously (Gbollie &; Keamu, 2017). The development of student's abilities is influenced by optimal learning motivation in improving student learning (Gusman et al., 2021; (Wulanningtyas &; Fauzan, 2022).

This creates high learning outcomes that can be achieved if the learning motivation is high as well, meaning that the higher the learning achievement that will be achieved, then followed by high learning motivation, so that it will obtain the expected learning effectiveness.

The perspective of the beneficial effects of internet gaming can be elaborated to increase concentration for users or gamers in playing games that require a high level of focus (Royan, 2023). If the level of play is
difficult, it requires a high concentration level. Develop data thinking or reasoning that can improve the ability to solve problems, analyze situations, and make decisions quickly.

From the description of online games' impact, there are positive and negative impacts, especially among students. The same happened at SD Muhammadiyah 1 Waru. The development of technology in the form of online games has positively and negatively impacted students at SD Muhammadiyah 1 Waru.

The positive impact of online games shown by students is that when learning takes place, the average student who likes or is accustomed to playing online games when studying in class responds faster in solving problems. The aforementioned favourable effects of online games highlight their potential to enhance cognitive abilities such as critical thinking and reasoning. Engaging in online gaming facilitates the cultivation of problem-solving abilities, situational analysis proficiency, and mathematical acumen, while also fostering the capacity to make prompt judgements.

However, the negative impact is that students struggle to concentrate during learning, whereas online games can affect the difficulty of focusing during teaching and learning. When the learning process is a gamer who is addicted will think more about fun, and his concentration in education is disrupted.

Based on the observations of researchers at SD Muhammadiyah 1 Waru, online games use multimedia that is made as attractive as possible so that players get batik satisfaction and use internet access. Online games might potentially influence the motivation of students in their pursuit of learning. The previous study was distinguished by its distinct emphasis on examining the influence of online games on students' desire for studying. The investigation was conducted in SD Muhammadiyah 1 Waru, situated in the Sidoarjo Regency.

This research aims to analyze the Effect of Online Games on Telrhadap Education on Student Learning Motivation at SD Muhamamdiyah 1 Waru, Sidoarjo Regency.

### B. RESEARCH METHOD

The type of research used in this study is quantitative. Data and information collection techniques were obtained through questionnaires and documentation of SD Muhamamdiyah 1 Waru students. Sugiyono asserts that research methodologies grounded in positivism are used to investigate certain populations or phenomena, using research instruments for data collecting and quantitative/statistical analysis, with the objective of empirically testing predetermined hypotheses (Sugiyono, 2013).

The data source used in this study is a questionnaire as primary data made by researchers to solve the problem being studied. The questionnaire contains several questions and written statements given to respondents, which respondents answer in writing. Questionnaire data from respondents
was calculated using a Likert scale of 1-5. At the same time, secondary data obtained through documentation is used to get original data directly from the source study. The data collected from this study consisted of online games and student learning motivation. Data regarding online games and student learning motivation were obtained through documentation and questionnaires given to respondents.

The population of this study was all elementary grade students totaling 100 people with sample determination using simple random sampling techniques, which is 25% of the total population, namely 60 elementary school students. The reason chosen by the researcher based on a survey that has been observed why using grade 3, 4, and 5 students at SD Muhammadiyah 1 Waru as a research sample is that high-grade students already have better cognitive abilities compared to students who are still in low grades.

The data obtained from the questionnaire is then analyzed and used to answer the problem formulation. Data collected from questionnaires is tabulated and displayed in tables. Prior to doing the correlation analysis, it is important to assess the soundness of the data by subjecting it to tests of validity and reliability. The purpose of the validity test is to assess the degree of veracity or falsity of the variable under investigation. The reliability test is used to assess the consistency of a measuring instrument when the measurement is replicated or repeated.

Furthermore, the data collected was analyzed using the SPSS application using a simple correlation and multiple regression tests and then analyzed descriptively. A basic correlation analysis is used to ascertain the degree of association between two variables and the nature of their connection. Multiple regression analysis is a statistical technique used to ascertain the extent to which the independent variable (X) has an impact on the dependent variable (Y).

![Quantitative Research Model](image)

Figure 1. Quantitative Research Model

### C. RESULTS AND DISCUSSION

#### Description of the Research Subject

This research was conducted at SD Muhammadiyah 1 Waru, Sidoarjo Regency, Jalan Anggrek VI no 36, Koreksari, Waru District, Sidoarjo Regency. The sample of this study is grade 3, 4, and 5 students totaling 100 students, which can be detailed as follows:

**Table 1. Data on the Number of Students in SD Muhammadiyah 1 Waru**

<table>
<thead>
<tr>
<th>Nu</th>
<th>Class</th>
<th>Man</th>
<th>Woman</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>III</td>
<td>14</td>
<td>23</td>
<td>35</td>
</tr>
<tr>
<td>2.</td>
<td>IV</td>
<td>5</td>
<td>23</td>
<td>36</td>
</tr>
<tr>
<td>3.</td>
<td>V</td>
<td>16</td>
<td>13</td>
<td>29</td>
</tr>
<tr>
<td>Sum</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the statistics shown in Table...
1, it is evident that class III has 14 male students and 23 female pupils. In Class IV, there are a total of 28 pupils, consisting of 5 male students and 23 female students. In Class V, there are a total of 29 pupils, with 16 being male and 13 being female.

**Descriptive Analysis Results**

Descriptive analysis of online game variables is used to determine the level of student learning motivation, which is categorized as very low, low, medium, high, and very high with the following formula:

\[ \text{Interval} = \text{Jumlah skor tertinggi} - \text{jumlah skor terendah} \]

Jumlah kategori

**Table 2. Frequency Distribution of Elementary School Peer Interaction**

<table>
<thead>
<tr>
<th>Category</th>
<th>Interval</th>
<th>Frequency</th>
<th>Present (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very high</td>
<td>170 – 200</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Tall</td>
<td>140 – 169</td>
<td>61</td>
<td>80%</td>
</tr>
<tr>
<td>Keep</td>
<td>110 – 139</td>
<td>9</td>
<td>12%</td>
</tr>
</tbody>
</table>

According to the data shown in Table 2, it can be seen that the impact of students' engagement in online games on their desire to study at SD Muhammadiyah 1 Waru is mostly classified as strong, accounting for 80% of the total.

**Table 3. Frequency Distribution of Learning Motivation**

<table>
<thead>
<tr>
<th>Category</th>
<th>Interval</th>
<th>Frequency</th>
<th>Presented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very high</td>
<td>136 – 160</td>
<td>6</td>
<td>8%</td>
</tr>
<tr>
<td>Tall</td>
<td>112 – 135</td>
<td>65</td>
<td>85%</td>
</tr>
<tr>
<td>Keep</td>
<td>88 – 111</td>
<td>5</td>
<td>7%</td>
</tr>
<tr>
<td>Low</td>
<td>64 – 87</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Very low</td>
<td>40 – 63</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>144</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>123.81</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 3 shown above, the learning drive of pupils is evident in grades 3, 4, and 5 at SD Muhammadiyah 1 Waru is classified as high, with a corresponding proportion of 85%. The normality test was conducted, yielding a significance value of 0.992, which is more than the predetermined significance level of 0.05. Based on this result, it can be inferred that the data may be considered to have a normal distribution. Based on the outcomes of the linearity test, it was determined that the acquired significant value of 0.529, which above the threshold of 0.05, indicates the presence of a linear association between the influence of online games and learning motivation.

**Table 4. Anova**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Itsel f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>791.024</td>
<td>1</td>
<td>791.024</td>
<td>14.58</td>
<td>.000 a</td>
</tr>
<tr>
<td>Residual</td>
<td>4013.963</td>
<td>74</td>
<td>54.243</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4804.987</td>
<td>75</td>
<td>54.243</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 5. Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>4804.987</td>
<td>75</td>
<td>54.243</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on the table above, it shows that the result of the t-value is calculated > t table (3.819>1.995) and significant 0.000<0.05. As for the determination results, an R-value of 0.406 and an R square of 0.165. Based on the obtained findings, it can be inferred that online games have a substantial impact on the learning motivation of students in grades 3, 4, and 5 at SD Muhammadiyah 1 Waru.

Discussion

The intensity of using online games on the level of student motivation

The results of the hypothesis test revealed a statistically significant influence of educational online games on the learning motivation of students in grades 3, 4, and 5 at SD Muhammadiyah 1 Waru. Therefore, the hypothesis was supported. The findings pertaining to the coefficient of determination indicate that engagement in online gaming has a little impact on learning motivation, with the majority of individuals being impacted by many other variables.

Based on the research results, learning motivation is influenced by 2 types, intrinsic motivation, where a student will continue to focus on constantly learning. It is a desire in him, while extrinsic learning motivation is a drive outside someone, whereas here, someone is not too concerned with learning, and even someone will be more concerned with other things to focus on.

Intrinsic motivation is those motives that become active or functioning so that there is no need for external stimulation. The person inherently has an intrinsic motivation to engage in action. Extrinsic motivation refers to the activation and operation of motivations that are driven by external stimuli (Aziz, 2017).

Of course, in that aspect, students get encouragement not to attach too much importance to learning and choose to attach importance to other things, one of which is online games, where when playing online games, someone will indirectly affect their learning motivation because the time and energy used will be spent playing rather than studying so that the respondents of the study stated that they could adjust the situation between playing online games against other needs from these results such as being called parents when playing online games should stop with very appropriate statements, control emotions, and stay diligent in learning.

The presence of novel and stimulating elements derived from engaging in gaming activities often leads pupils to exhibit complacency towards their academic responsibilities. This will be fatal if there is no synchronization in overcoming the negative impacts caused.

The findings of this study provide corroborating evidence for the research done by Soukotta, which posits that the impact of online game characteristics on student motivation is minimal. The remaining portion is attributed to several unidentified variables (Soukotta, 2016). The findings of the study are consistent with the outcomes of previously performed studies by Oktofiansa that online
games provide less motivation to learn to students, but more have a negative impact, such as not focusing on learning (Oktofiansa, 2021). However, the findings of this study exhibit a discrepancy when compared to the outcomes of Meldawati's research, which indicate a substantial magnitude of residual test results. Consequently, it can be inferred that a correlation exists between the frequency of engaging in online gaming activities, and students’ motivation and learning habits (Meldawati, 2021).

**The Influence of Educational Online Games on Student Learning Motivation**

Based on data on the scale of the influence of educational online games and learning motivation of SD Muhammadiyah 1 Waru students analyzed descriptively, the impact of online games is very large on most students, has little impact and almost no impact on a small number of other students. On learning motivation, it is known that most students are motivated, and a small number are less motivated or even almost unmotivated in learning.

The findings of this study are consistent with other research done by Fariha, indicating a significant correlation between online gaming and student desire for studying (Fahira, 2021). In addition, research conducted by Rahyuni et al., showed the same results (Rahyuni et al., 2021). However, research conducted by Amalia et al., shows that online games make students very low in learning motivation due to online game addiction (Amalia et al., 2022). Research conducted by Amalia et al., the results are different because students outside the lesson have experienced addiction to online games, so the use of online games as a medium to increase learning motivation is not appropriate, because it will make students more addicted.

The growth of learning motivation in students is due to the desire of students to know something and will experience student interest in learning so that they will be severe in education and will motivate to achieve learning achievement. A strong inclination towards learning is positively correlated with achieving high learning outcomes, indicating that the level of learning motivation directly influences the level of learning accomplishment. Enhancing the learning process is essential for achieving more efficacy in the acquisition of knowledge.

**The Effectiveness of Educational Online Games on Student Learning Motivation**

Ideal learning is learning that is able to stimulate student creativity as a whole, make students active, achieve effective learning goals, and take place in comfortable conditions (Sulthon, 2017; Puspitarini & Hanif, 2019; Ratnasari & Haryanto, 2019). Ideal learning does not only focus on the results achieved by students but emphasizes more on the learning process. How the learning process can provide understanding, intelligence, perseverance, quality, and shape the character, morals, or behavior of students that can be applied in everyday life (Eka Santika, 2020; Hu et al., 2021).
Ideal learning will also shape and instill democratic attitudes in students. This learning process gives students the freedom to carry out learning in their own way, because in this learning process students have been equipped with learning creativity with the potential that exists in them (Ifadah, 2019; Hardiyansyah et al., 2023).

Hence, it is vital to allocate due consideration to the process of acquiring knowledge. How learning is organized, how learning content is delivered, and how interactions between learning resources exist. This interaction or reciprocal relationship, the primary factor influencing the learning process is the contact that takes place between instructors and pupils.

The use of educational games has been shown to be efficacious in enhancing student learning results. The use of educational games as a learning tool necessitates active student engagement and the application of creative thinking in order to successfully complete these educational activities. The achievement of learning outcomes is inherently intertwined with the pivotal roles played by both students and instructors as motivators and facilitators within the learning process. The part of teachers as motivators and facilitators can be fulfilled by choosing good learning media. The research results conducted using educational games are effective in the learning motivation of SD Muhammadiyah 1 Waru students. This is evidenced by the results of hypothesis tests that have a significant effect. This means that educational online games have a substantial influence on student learning motivation.

D. CONCLUSION

Based on the results and discussion about the game online effect on motivation students study in the class SD V Muhammadiyah, it can be concluded a following: 1) Online games affect learning motivation in students of SD Muhammadiyah 1 Waru. Playing online games has a negative effect if operated continuously, which will cause physical disorders such as weakening of the eye nerves; 2) Applying a comprehensive technology learning process is one alternative strategy for students with online game addiction; 3) Based on the research results, children spend time playing on the Internet by 15% for 30 minutes. Then it rises by 25% for 2 to 3 hours in one day. 60% of children play on the Internet for 5 hours per day or possibly more than 5 hours during school holidays.

Based on the findings of a simple linear regression test, it was found that recalculate has a significance level of 5%, which is 0.703 > 0.444, and recalculate> rtable. Ha is. "There is a game online effect on student motivation at SD Muhammadiyah 1 Waru Kabupaten Sidolajarjol" can be examined, and the hypothesis test shows that there is a significant effect between the online game effect on student motivation in students in classes 3, 4, and 5 SD Muhammadiyah 1 Waru.
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