

## PLAYING ONLINE GAMES AND ITS IMPACT ON ELEMENTARY SCHOOL STUDENTS' LEARNING RESPONSIBILITIES

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### Abstract

*This study aims to determine the effect of playing online games on the learning responsibility behavior of fourth-grade students at SDN 1 Watubelah. Online games have become part of children's daily lives, including elementary school students, so it is important to see how this activity impacts their academic attitudes and behavior. This study used a quantitative approach with a survey method. The sample in the study consisted of 33 students who were selected purposively. The instrument used was a questionnaire with a Likert scale to measure the intensity of playing games and learning responsibility. The results showed that most students had a high intensity of playing games, both in terms of duration, frequency, and less than ideal time. In addition, more than half of the students showed symptoms of decreased learning responsibility, such as frequently procrastinating assignments, lack of discipline, and loss of focus while studying.*

**Keywords:** *online games; learning responsibility; students; academic behavior.*

### Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh bermain game online terhadap perilaku tanggung jawab belajar peserta didik kelas IV di SDN 1 Watubelah. Game online telah menjadi bagian dari kehidupan sehari-hari anak-anak, termasuk siswa sekolah dasar, sehingga penting untuk melihat bagaimana aktivitas ini berdampak pada sikap dan perilaku akademik mereka. Penelitian ini menggunakan pendekatan kuantitatif dengan metode survei. Sampel dalam penelitian berjumlah 33 siswa yang dipilih secara purposive. Instrumen yang digunakan berupa angket dengan skala Likert untuk mengukur intensitas bermain game dan tanggung jawab belajar. Hasil penelitian menunjukkan bahwa sebagian besar peserta didik memiliki intensitas bermain game yang tinggi, baik dari segi durasi, frekuensi, maupun waktu yang kurang ideal. Selain itu, lebih dari separuh siswa menunjukkan gejala penurunan tanggung jawab belajar, seperti sering menunda tugas, kurang disiplin, dan kehilangan fokus saat belajar.

**Kata kunci:** *game online; tanggung jawab belajar; peserta didik; perilaku akademik.*

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### Introduction

The development of information and communication technology in the digital era has influenced children's lifestyles, including education. This progress has had positive impacts such as easier access to information, increased knowledge, improved communication, and expanded social networks. However, there are also negative impacts such as declining nationalism, increased risk of crime, behavioral changes, loss of time, social difficulties, and declining health (Nugraha et al., 2021). Access to digital devices such as smartphones and computers has also expanded children's entertainment activities, particularly online games, which are increasingly developing in the era of Industry 4.0 based on the Internet of Things (IoT), data automation, and artificial intelligence (Sutisno & Nurdiyanti, 2020). Online games are now not only a form of entertainment but also contribute to shaping students' behavior and lifestyles. According to

Prasetyo & Handayani (2023), online games have become a routine activity favored by children due to their interactivity and ease of access. Salsabila & Permana (2022) similarly expressed that more than 60% of elementary school students in Indonesia admit to playing online games daily, even during online learning hours.

However, the widespread use of online games among elementary school-aged children raises concerns about a decline in academic commitment. Students who spend excessive time playing games tend to experience decreased motivation, punctuality in completing assignments, and study consistency. Research by Fitriani & Rahmawati (2023) shows a negative correlation between game playing time and students' academic commitment. Moreover, a study by Lestari & Maulana (2022) found that students who played games for more than two hours per day showed signs of decreased academic discipline and decreased attention to class.

Responsible learning is closely related to the concept of self-regulated learning (Ge et al., 2025), which emphasizes that responsible learners are able to set learning goals, monitor progress, and evaluate their learning outcomes independently. Recent research also shows that excessive use of online games can disrupt self-regulation, thus impacting academic discipline (Zhang, 2024). Meanwhile, character education is based on Lickona's theory (Arif et al., 2023), which emphasizes three important components: moral knowing, moral feeling, and moral action. Character values such as responsibility, discipline, and commitment to learning need to be instilled from an early age through collaboration between schools and families. According to Yuliani & Hamid (2023), students' low levels of responsible behavior are often influenced by a lack of control from the family and school environment in regulating digital media use. This is supported by research by Marlina and Yusuf (2022), which emphasizes the importance of collaboration between teachers and parents in forming healthy and educational gadget usage patterns. In this regard, the family environment is a crucial factor influencing the formation of a child's character. The family environment is the first place where children learn basic values, including responsibility. The circumstances or events that frequently occur within the family, where children live and learn, are referred to as the family environment. To ensure a safe, comfortable, peaceful, and enjoyable home for both parents and children, parents must implement appropriate techniques to foster a harmonious family atmosphere (Rahayu, 2024). A positive and communicative family atmosphere will facilitate children's development of discipline and responsibility, especially in facing the challenges of healthy and purposeful technology use.

Several studies have shown that online gaming impacts students' learning behavior. Sari & Fitriana (2021) stated that most students who play games intensively experience a decline in completing schoolwork and demonstrate less responsibility. Hartati & Maulana (2020) also found that students who habitually play games exhibit low levels of courage in taking learning initiatives and experience decreased self-confidence in the learning process. These studies reinforce the assumption that online gaming can impact the non-cognitive dimensions of a child's education.

Nevertheless, this study offers novelty by focusing on the influence of online gaming on learning responsibility, specifically in fourth-grade elementary school students in a formal school setting. Most previous studies have focused on the impact of gaming on achievement or mental health, but few have examined the direct link between gaming intensity and academic responsibility behavior. Research by Setiawan & Cahyani (2023) did address the issue of gaming addiction, but did not focus on indicators of learning responsibility such as commitment to assignments, punctuality, and study discipline. This distinguishes this study from previous

studies and enriches the body of research on digital technology-based character education.

This research is also significant because it was conducted in a local context, namely at SDN 1 Watubelah, where most students have access to digital devices at home. This situation provides ample space for children to play games without full adult supervision. This study is expected to contribute to the formulation of educational strategies to guide children in healthy game use. As stated by Wahyuni & Hidayat (2022), students' digital habits need to be guided by a technology-adaptive learning approach. Meanwhile, research by Firmansyah & Oktaviani (2020) emphasizes the need for school policies to integrate digital literacy into student character-building programs. Therefore, this study aims to determine the influence of playing online games on students' responsibility.

### **Research Methods**

This study used a quantitative approach with a survey method to measure the effect of playing online games on students' responsible learning behavior. This study uses a quantitative approach because it aims to objectively and measurably measure the relationship between online game playing intensity and students' learning responsibilities. Through this approach, the data obtained are in the form of numbers from research instruments such as questionnaires, allowing for statistical analysis. A quantitative approach was chosen because it provides a clearer picture of the magnitude of influence and the relationship between variables with a high degree of accuracy. Furthermore, quantitative research results can be generalized to a wider population if the sample used is proportionally representative of the population. The study was conducted at SDN 1 Watubelah, with the subjects being fourth-grade students who have a habit of playing online games. The sampling technique used was purposive sampling, with the criteria being students who actively play games at least three times a week. The number of respondents in this study was 33 students.

The main instrument in this study was a Likert-scale questionnaire based on two variables: online gaming intensity and responsible learning behavior. The instrument underwent content validation by experts namely lecturers and teachers and instrument trials to measure empirical validity and reliability using the Cronbach's Alpha formula. Data analysis was conducted descriptively to describe the data distribution and inferentially using simple linear regression to examine the influence between the independent and dependent variables. The analysis process was conducted using SPSS version 24 software.

The research procedure began with the preparation phase, which included problem identification, literature review, hypothesis formulation, and the development of research instruments. The instruments were then tested for validity and reliability on respondents outside the core sample. The next stage was data collection by distributing questionnaires directly to students at school during scheduled instructional hours with the class teacher, previously the researcher had received the principal's approval to carry out research at SDN 1 Watubelah. The researcher also conducted non-participatory observations to record the situation during the questionnaire filling process. The entire data collection process took place over a one-week period.

The data collected in this study were primary data in the form of student responses to a questionnaire compiled using a four-point Likert scale. Two types of data were collected, namely: (1) data on the intensity of playing online games, which includes duration, frequency, playing time, and emotional involvement; and (2) data on learning responsibility behavior, which includes indicators such as discipline in completing assignments, time management skills, commitment to learning obligations, and learning consistency. This questionnaire instrument

has been validated by material experts and empirically tested on trial respondents. The results of the reliability test show that the instrument has a Cronbach's Alpha coefficient above 0.70, indicating a high level of reliability.

The data were analyzed descriptively to determine the distribution and tendency of respondents' answers for each variable, and inferentially using simple linear regression analysis to test the hypothesis of the relationship between variable X (online gaming intensity) and variable Y (responsible learning behavior). Data processing was carried out using SPSS version 24 software. The analysis results were used to answer the research questions and test the validity of the research statistical hypotheses, namely:

(Ha): There is a significant effect of playing online games on the responsible learning behavior of fourth-grade students at SDN 1 Watubelah.

(Ho): There is no significant effect of playing online games on the responsible learning behavior of fourth-grade students at SDN 1 Watubelah.

The decision-making criteria are:

If the significance value (p-value) of the t-test is  $< \alpha$  (0.05), then the null hypothesis is rejected, meaning there is a significant effect of online games on students' responsible behavior.

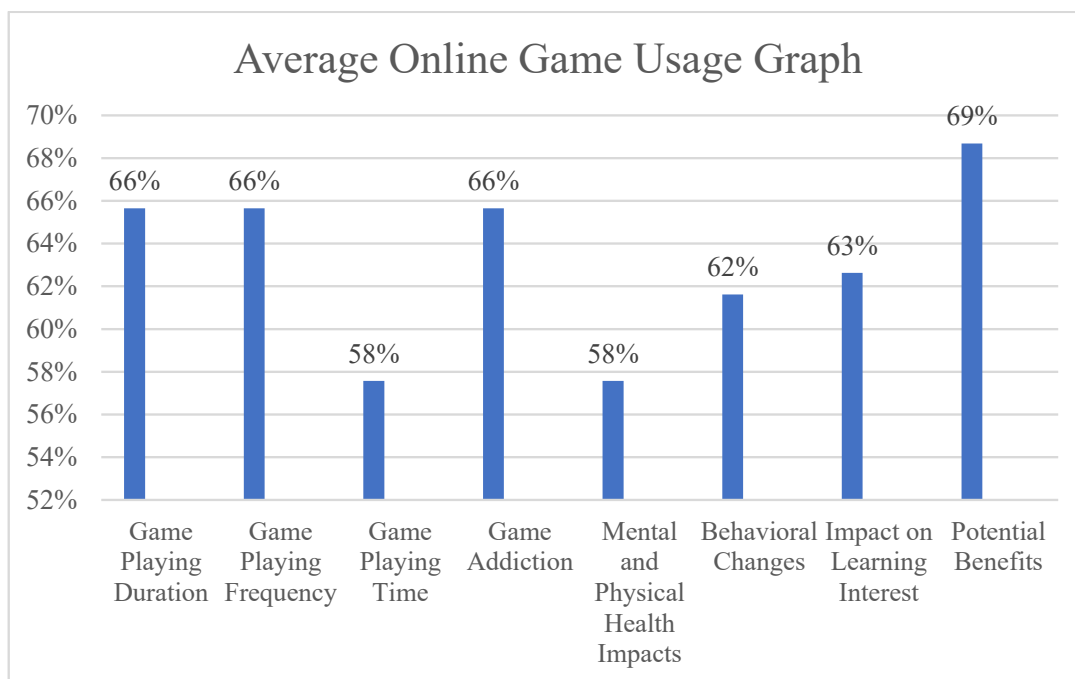
If the significance value (p-value) of the t-test is  $> \alpha$  (0.05), then the null hypothesis is accepted, meaning there is no significant effect of online games on students' responsible behavior.

Regression results were used to determine the significance and direction of relationships between variables, while descriptive results provided a general overview of the level of online game use and the quality of students' learning responsibilities. These findings were then compared with previous research and critically analyzed to determine their implications for student character development. Thus, the results obtained not only explain the statistical relationships between variables but also provide practical insights for teachers and parents in guiding children to face the challenges of learning in the digital age.

However, this research method uses simple linear regression analysis, which has several limitations. First, simple linear regression can only test the relationship between one independent variable and one dependent variable, thus failing to capture the influence of other variables that may also play a role. Second, this model assumes a linear relationship between the independent and dependent variables, when in reality, this relationship may be nonlinear or influenced by interactions between the variables. Third, simple linear regression is sensitive to violations of classical assumptions such as normality, homogeneity of variance, and the absence of multicollinearity, which, if not met, can affect the validity of the research results.

## Results and Discussion

This study aims to determine the effect of playing online games on the learning responsibility behavior of fourth-grade students at SDN 1 Watubelah. The research instrument used has been tested for validity and reliability on 33 respondents. The validity test shows that all items in the online game and learning responsibility variables have a calculated r value greater than the r table (0.2869), so that all statement items are declared valid. The reliability test with Cronbach's Alpha shows a value of 0.969 for the online game variable and 0.971 for the responsibility variable, which means that the instrument has very high internal consistency. The use of online games by 33 respondents is shown in the graph below.

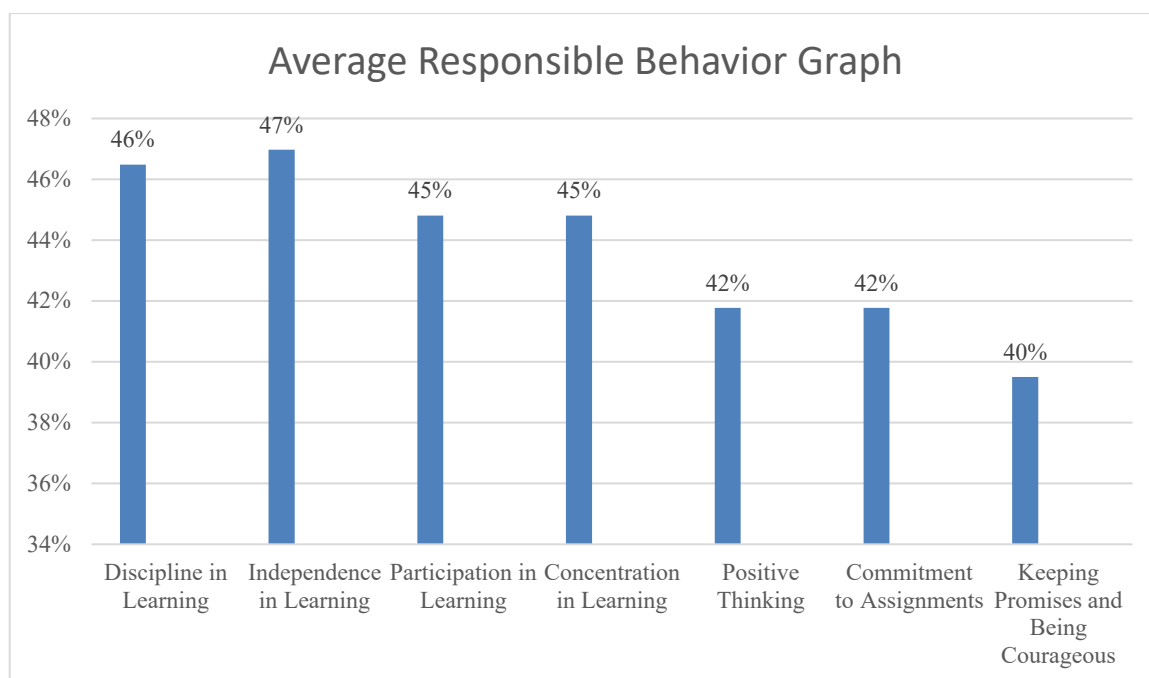


**Figure 1.** Average Usage of Online Games

**Table 1.** Average Usage of Online Games

Indicator	Percentage
Game Playing Duration	66%
Game Playing Frequency	66%
Game Playing Time	58%
Game Addiction	66%
Mental and Physical Health Impacts	58%
Behavioral Changes	62%
Impact on Learning Interest	63%
Potential Benefits	69%

Based on Figure 1 and table 1, it shows that the indicators of online game use in terms of duration, frequency, and addiction to playing online games are in the range of 66%, game playing time and impact on Mental and Physical Health are 58%, behavioral changes are 62%, impact on learning interest is 63%, and potential benefits are 69%.



**Figure 2.** Average Responsible Behavior

**Table 2.** Average Responsible Behavior

Indicator	Percentage
Discipline in Learning	46%
Independence in Learning	47%
Participation in Learning	45%
Concentration in Learning	45%
Positive Thinking	42%
Commitment to Assignments	42%
Keeping Promises and Being Courageous	40%

Based on Figure 2 and table 2, the learning responsibility indicator shows an average value below 50%, with the second highest indicator being independence (47%) and the lowest being keeping promises (40%). Furthermore, the discipline indicator ranks second highest at 46%, participation and concentration in learning at 45%, and positive thinking and commitment to tasks at 42%. This indicates that although students are aware of the benefits of online games, their learning responsibility tends to remain low.

The results of the prerequisite tests before conducting a simple linear regression test include: the normality test with Kolmogorov-Smirnov shows that the data is normally distributed, with a significance value of 0.140 for the online game variable and 0.533 for responsibility; the Pearson correlation to see how strong and in what direction the relationship is between two variables test produces a value of  $r = 0.917$  with a significance of 0.000, which indicates a very strong and significant positive relationship between the two variables; the results of the linearity test or the relationship between two variables follows a straight line (linear) pattern or not also show that the relationship between online games and responsibility is linear, with a significance of 0.000 and a deviation from linearity or the extent to which data or relationships between variables deviate from a straight line pattern of 0.371. After fulfilling the prerequisite tests, namely normally distributed data, a very strong positive relationship between

the two variables, and a linear relationship, then the simple linear regression test is continued which produces the following output.

**Table 3.** Simple Linear Regression Equation

Model		Unstandardized		Standardized	t	Sig.
		Coefficients				
		B	Std. Error	Beta		
1	(Constant)	-2.873	1.653		-1.738	.092
	Game_Online	1.113	.087	.917	12.814	.000

a. Dependent Variable: Tangung\_Jawab

Table 1 regarding the results of the simple linear regression output obtained the regression equation  $Y = -2.873 + 1.113X$ , which means that every one unit increase in the intensity of playing online games will increase responsibility by 1.113 units. This regression coefficient is significant with a p value = 0.000. The R square value of 0.841 indicates that 84.1% of the learning responsibility variable can be explained by online games, while the rest is influenced by other factors. Thus, the results of this study conclude that playing online games has a significant influence on the learning responsibility behavior of fourth grade students at SDN 1 Watubelah.

The results of this study revealed that fourth-grade students at SDN 1 Watubelah have a fairly high intensity of online game use. This is indicated by the duration, frequency, and addiction to gaming, which averaged around 65%. Regarding the duration and frequency of gaming, this is in line with research by Rudi & Herwanto (2022); Saputra et al. (2024) found that elementary school students with online gaming intensity above 60% tend to show a decline in responsibility aspects, such as neglecting schoolwork, procrastinating homework, and being less disciplined with their study schedules. A similar finding was expressed by Putra & Rusli (2021), who showed that the habit of playing games for hours every day affects students' attitudes towards time management and completing academic obligations. High frequency of gaming is associated with low time management skills, so students often neglect academic obligations and homework (Subagyo et al., 2024).

The high duration and frequency of online gaming can lead to high levels of addiction, with this study finding that 65% of students are addicted to online gaming. This is in line with research conducted by Pratama & Suherman (2024), which revealed that elementary school students who play for more than two hours per day have a risk of online gaming addiction of more than 60%. Another study by Pinasti & Khoirunnisa (2022) also found that high intensity and frequency of gaming correlate with decreased self-control, which is an indicator of addiction. Griffiths' (2005) Behavioral Addiction Theory supports these findings, defining addiction as a repetitive pattern of behavior that is difficult to control, even though a person is aware of its negative impacts. Furthermore, the Uses and Gratification theory Katz et al. (1974) explains that online gamers tend to play to satisfy their needs for entertainment, escape, or social interaction, which, if done excessively, can lead to addictive behavior.

Awareness of the negative impacts is also quite evident, with indicators for physical and mental health and playing time hovering around 58%, reflecting a heightened awareness of the risks of uncontrolled gaming. This finding aligns with research by Lestari & Nugroho (2021), which showed that although more than half of junior high school students play games daily,

most admitted to being aware of negative effects such as eye strain, lack of sleep, and stress. Research by Firmansyah and Oktaviani (2020) also supports this finding, noting that 58% of respondents who actively play games still expressed concern about the negative impacts of gaming on their mental health, such as mood disorders and anxiety. Furthermore, a study by Marlina and Yusuf (2022) found that students who play games for moderate to high durations are aware of the risks to posture, sleep disturbances, and emotional changes, but still try to manage their playing time to minimize the impact. Thus, despite the high intensity of gaming, awareness of the physical and mental health risks indicates that students are not completely unaware of it, but rather have a reflective attitude towards their digital behavior.

The behavioral change and impact on learning interest indicators ranged from 62-63%. This suggests that some students are beginning to realize that online gaming can affect their learning habits and focus. While this impact is not considered significant, it is still significant to consider, especially in the context of education and student character development. Research by Rahmawati and Suryani (2020) showed that students with high levels of gaming intensity tended to experience decreased motivation and concentration in learning, although not all showed a drastic decline in grades. Furthermore, Setiawan and Cahyani (2023) found that most students played games for more than three hours per day, making it a routine habit, even exhibiting symptoms of addiction such as lost study time and impaired concentration. Another study by Pratama and Wulandari (2021) revealed that 67% of students played games daily for an average duration of more than two hours. This high frequency is considered an indicator of potential addiction, although students also acknowledged benefits such as entertainment and relaxation. Even in elementary school-aged children, Astuti and Maulida (2019) noted that using games for more than two hours per day resulted in addictive behavior, such as lack of sleep and decreased interest in learning, even though children also felt entertained while playing.

Nevertheless, most students also recognize the positive benefits of online games, such as the ability to develop strategy, creativity, and as a means of entertainment, with the highest response reaching nearly 69%. This indicates that students have a relatively balanced view, not only seeing the entertainment side, but also understanding the educational side of games. Several studies have shown that online games do not only have negative impacts, but can also provide positive benefits, such as developing strategy, creativity, and problem-solving skills. Research by Ainiyah & Rohma (2025) found that elementary school students who played educational or strategy-based games showed an increase in logical and creative thinking skills of up to 65%, compared to students who did not play games. This finding is in line with a study by Ramadhoni & Kholidin (2025), which stated that online games can act as a means of entertainment that reduces stress levels while also fostering collaboration and decision-making.

In terms of responsible learning behavior, the indicator of student discipline in learning is at 46%. According to the Self-Regulated Learning theory Ge et al (2025), learning discipline is closely related to an individual's ability to regulate themselves, set goals, and control learning behavior to align with academic targets. The 46% discipline percentage indicates that most students do not yet have good self-control in learning activities. Research by Mufidah & Sartika (2025) revealed that low learning discipline in elementary school students is related to low intrinsic motivation and high distractions from non-academic activities such as playing online games. Another study by Ummat et al. (2024) also showed that only around 40–50% of high school students have a high level of learning discipline, while the rest tend to be negligent in their study schedules and homework.

The Independence in Learning indicator was the highest at 47%, indicating that nearly half of students have the ability to manage their learning process independently, although there is still room for improvement. Research by Afid et al. (2024) found that the learning independence of elementary school students is on average in the moderate category (around 45–50%), which is influenced by intrinsic motivation and a supportive learning environment. A similar finding was expressed by Stevanus & Gita (2022), who showed that students with high learning independence are able to complete assignments without much teacher guidance and have the ability to find their own solutions when faced with difficulties. Furthermore, research by Lestari et al. (2024) stated that project-based learning and the use of digital technology can increase the learning independence of elementary school students.

The participation and concentration indicators were 45%, both of which are important aspects of responsible learning behavior because they reflect students' active involvement in the learning process. A 45% percentage for the participation and concentration indicators indicates that nearly half of students are able to actively engage and concentrate well, although most still require support with more effective learning strategies. Research by Ramadhani et al. (2025) found that elementary school students' learning concentration levels ranged from 40–50%, especially when students were too often distracted by non-academic activities such as gadgets and online games. Another study by Habibi & Adnan (2021) showed that low student participation in class correlated with low learning outcomes, because students were not fully engaged in the learning process. Meanwhile, research by Dhani et al. (2024) revealed that the implementation of interactive learning methods was able to significantly increase student participation and concentration, from around 45% to 70% after the intervention.

However, indicators such as Positive Thinking and Commitment to Tasks remain low at 42%. Positive thinking and commitment to tasks are important aspects of responsible learning behavior related to emotional regulation, motivation, and persistence. The 42% percentage for both indicators indicates that most students still lack the internal drive to complete tasks and view the learning process with an optimistic attitude. Research by Kurniawan & Aryani (2024) shows that low levels of positive thinking in elementary school students are related to a lack of motivational strengthening strategies from teachers and an unsupportive learning environment. A study by Rahmawati et al. (2025) revealed that only around 40–50% of elementary school students demonstrate a high commitment to completing tasks, especially in the digital era full of distractions. Furthermore, research by Parjianto et al. (2021) found that positive thinking training can increase students' commitment and persistence in completing academic tasks.

Furthermore, the Keeping Promises and Courage indicators had the lowest percentages, at 40%. A low percentage of 40% for both indicators indicates that most students still struggle to maintain commitments (keeping promises) and lack confidence in facing learning situations. Research by Tamba & Shaleh (2024) shows that only 35–45% of elementary school students are able to keep promises related to completing assignments or academic commitments, especially among students with high levels of device use. A study by Akbari & Sahibzada (2020) also revealed that low self-confidence (courage) in students is often caused by overprotective parenting styles and minimal opportunities for independent decision-making. Furthermore, research by Apriana et al. (2025) confirms that habituation programs such as learning contracts and group discussions can improve responsibility indicators, including keeping promises and daring to express opinions in class.

From the overall indicators of student responsibility, it can be concluded that students' personal responsibility behavior is more developed than their social and moral responsibility. This finding aligns with research by Sari and Fitriana (2021), which revealed that students tend

to be better at managing their own learning than demonstrating social responsibility. Research by Hartati and Maulana (2020) also supports this finding, stating that aspects of moral responsibility such as integrity, commitment, and courage in decision-making are not yet fully formed in elementary school. Therefore, although students have begun to develop a sense of responsibility toward themselves, further development is still needed to foster stronger values of social responsibility.

Furthermore, the regression analysis results show that online game use has a very significant influence on responsible learning behavior, with a contribution of 84.1%. This means that most of the variation in responsible learning can be explained by the intensity of gaming. These findings appear to contradict the initial assumption that online gaming reduces students' responsibility for learning. Several possible explanations for this phenomenon which one not all types of games have negative impacts. Some educational or strategy games can actually train time management skills, discipline, and problem-solving abilities, which are positively correlated with responsibility for learning, proven by the results of filling out the online game usage questionnaire on the potential benefits indicator of 69%. However, the regression results are a limitation of the research. First, the results showing that the intensity of online gaming has a positive effect on students' learning responsibility may only apply to the context of SDN 1 Watubelah, with its specific student characteristics, environment, and parental and teacher supervision. Therefore, these findings cannot necessarily be generalized to other schools. Second, the use of simple linear regression resulted in other variables such as game type, playing duration, or motivational factors not being analyzed in depth, even though these variables could influence the research results. Third, the potential for respondent bias is unavoidable because the data were obtained through questionnaires, where students may have answered according to the researcher's or teacher's expectations. Fourth, this study did not differentiate between the types of games played, thus limiting the generalizability of the results. Therefore, it can be concluded that this study has limited scope because it does not involve other variables outside of game playing intensity. This is different from research by Darmawan and Wilani (2025), which emphasizes the importance of social and internal environmental factors in shaping responsible learning behavior. Therefore, a holistic and collaborative educational approach is needed, which not only limits gaming time but also strengthens character development, family education, and healthy social interactions at school, to help students develop a more balanced and sustainable attitude of responsibility.

## Conclusion

Based on the research results, it can be concluded that the use of online games has a very significant influence on the learning responsibility behavior of fourth-grade students at SDN 1 Watubelah. The high intensity of online game use, especially in terms of duration, frequency, and emotional involvement, has a significant impact on reducing several aspects of learning responsibility such as commitment to tasks, keeping promises, and courage. Although students showed a level of awareness of the benefits of games and the potential risks they pose, excessive use still affects consistency in carrying out academic obligations. The analysis results show that the contribution of the influence of online games on learning responsibility behavior reached 84.1%, meaning this factor dominates changes in student learning behavior. However, there was also a 15.9% influence from other variables such as family environment, intrinsic motivation, and peer support, which emphasizes the importance of a holistic educational approach and collaborative. Therefore, learning strategies that address cognitive, affective, and social aspects

in a balanced manner are essential to fostering positive and sustainable responsible learning behaviors in students in today's digital age.

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