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The Impact of Internet Addiction on the Academic Achievement of Secondary School Students in Adulthood

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Abstract

Over the past two decades, research on internet addiction has increased significantly. The objective of this study was to analyse the relationship between the extent of internet use among adolescent students and their academic performance. The study found that boys spend more time on the internet compared to girls, and internet addiction typically develops at the age of 11-15 years. The average usage duration ranges from 7-8 hours per day. The sample size consisted of 55 school students, and the "Internet Addiction Scale" (Young, 1998) was used. Subsequently, regression analysis was conducted to test the hypothesis.

The study results indicate that the level of internet use is negatively correlated with academic performance. Excessive internet usage reduces students' attention to academic activities. Specifically, excessive engagement in social media, online gaming, and entertainment content decreases their interest in studies.

This study provides valuable insights for teachers, parents, and policymakers by analysing adolescents' internet usage patterns. Moreover, it can help raise awareness about the negative effects of internet addiction and assist in developing responsible and balanced internet usage strategies for students.

Keywords: Internet addiction, Secondary students, adolescent, achievement.

Introduction

The Internet currently plays a crucial role in people's lives. It is not only a means of gathering information but also creates opportunities for self-improvement and serves as a strategic tool for adapting to rapidly changing technology. People accustomed to an information-driven life now live in a society where everything is constantly being updated. The Internet has become a fundamental necessity for people of all ages and genders. However, the increasing tendency of children and adolescents to use the Internet has become a matter of concern, as many are becoming addicted to it.

A review of history shows that Internet usage in Indonesia began around the year 2000 and has grown rapidly since then. According to the country's Ministry of Communication and Information, Indonesia is one of the largest mobile device-using countries in Southeast Asia. In 2013, with 236.8 million mobile users, it ranked fifth globally in mobile usage (Anggraeni & Wihardja, 2020). The use of advanced technology has both positive and negative impacts. The positive aspects include quick access to information, easy communication, and entertainment opportunities (Anggraeni & Wihardja, 2020). On the other hand, the negative impacts include data theft, exposure to violence and pornography,

negligence in responsibilities due to excessive gadget usage, and ultimately, addiction to technology (Kende, 2014).

The use of Internet devices among adolescents and young people is steadily increasing. Most of them spend their leisure time on mobile phones, laptops, and tablets, which help reduce their mental stress. The excessive academic pressure and social complexities of modern life mentally exhaust them, making Internet-based devices a medium for relaxation. Research has shown that these devices can also play a positive role in academic skills development, particularly in improving visual-cognitive skills, which are important in science (Anand, 2007; Jackson *et al.*, 2011). However, uncontrolled use can negatively impact academic success, although limited and regulated gaming can aid learning (Smyth, 2007; Lay *et al.*, 2009).

Further research has shown that adults are more likely to become addicted to Internet devices than children. Excessive use can cause sleep disturbances, lack of self-esteem, anxiety, depression, and negatively impact academic performance (King, 2018; Ridders *et al.*, 2016). Internet addiction has serious consequences in the lives of children and adolescents. Addiction refers to a dependent behavior in which an individual becomes so physically and mentally attached that they feel discomfort or distress if deprived of it. It has

detrimental effects on mental health (Kuss & Griffiths, 2011; Samli, 2018). Anderson and Dill (2000) have shown in their research that playing video games not only affects education but can also increase aggressive tendencies, leading to academic problems.

Adolescents who excessively use the Internet tend to neglect social relationships and personal interactions, becoming engrossed in technological devices (Müller *et al.*, 2015). However, verbal and written communication skills are crucial for academic success.

Various studies have examined the relationship between Internet devices and academic achievement (Harahap & Ramadan, 2021; Kurnada & Iskandar, 2021; Turner *et al.*, 2018). Some studies suggest that while controlled Internet device usage can aid education, excessive usage may lower educational quality (Adžić *et al.*, 2021; Islam *et al.*, 2020). Thus, through time management and controlled usage, Internet devices can positively impact academic success.

Therefore, further research is needed on the academic effects of excessive Internet usage, particularly by analysing the relationship between students' grades and addiction.

Method

This study employed a correlational research design, utilizing a questionnaire to collect necessary data through surveys. Correlational research design is used to establish relationships between two or more variables. This design was appropriate as it could determine the relationship between Internet addiction and academic achievement. The participants of the study were students from Kolkata & North 24 PGS schools, selected through a purposive sampling method, where the selected individuals did not represent the entire population but had essential information regarding the research topic.

A total of 55 participants responded to the survey questionnaire. Among them, 25 (45%) were female, and 30 (55%) were male. Statistical analysis was conducted using percentages, weighted mean, and Pearson's correlation. To achieve the research objectives, it was necessary to collect information regarding students' Internet addiction and academic success. A questionnaire was used for data collection, which was developed based on the Internet Addiction Scale (Lemmens *et al.*, 2009). This questionnaire measured seven addiction indicators, including: salience, tolerance, mood modification, relapse, withdrawal, conflict, and problems. The instrument had four response options:

- i). Rarely,
- ii). Sometimes,

- iii). Often, and
- iv). Very often.

To assess students' academic success, their school reports were collected for two classes and compared with their individual responses. Then, Pearson's product-moment correlation coefficient and independent sample t-test were used to test the research hypothesis, with data analysis conducted at a significance level of 0.05.

Results and Discussion

Based on previous research on the impact of electronic device usage among adolescents, this study analyzed the relationship between Internet addiction in secondary school students and its effect on their academic success in adulthood. The study results indicate that excessive Internet use negatively impacts students' academic performance, supporting the conventional understanding.

In this study, a questionnaire was developed using the Internet Addiction Scale formulated by Lemmens (2009) to analyze how students' levels of Internet usage relate to their academic success. Based on the research findings, the following key information has emerged according to Lemmens' criteria:

- Students use the Internet for an average of 3-5 hours per day, with a weighted mean of 2.78%.
- The smartphone is the most popular Internet device, preferred by 38% of students.

Figure 1: Characteristics of Respondents Based on Types of Internet Addiction

- The study further revealed: 67.2% of respondents admitted that using Internet devices makes them feel good.
- 74.50% of students stated that they sometimes avoid important tasks to spend time online.
- 30.90% of respondents believe that they experience mental stress if they cannot use Internet devices, while the rest did not acknowledge this.
- 36.4% of respondents frequently face conflicts due to Internet addiction, while 49.1% reported that it happens occasionally.

The findings of this study clearly indicate that Internet addiction significantly affects students' academic performance and social behaviour, which may create challenges for their future careers and mental health.

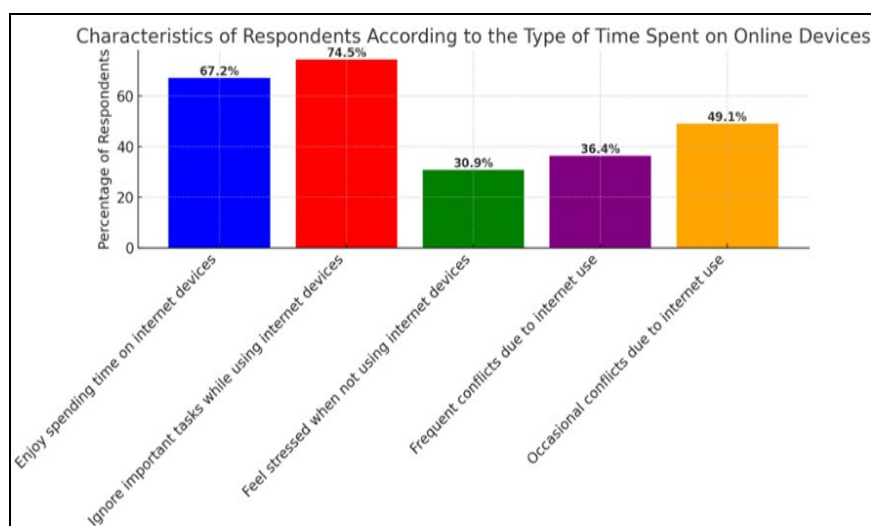


Fig 1: Characteristics of Respondents According to the Type of Time Spent on Online Devices

According to the above information, the majority of respondents, or 67.2%, stated that they enjoy spending time using Internet devices. Next, when asked whether they neglect other important matters while using Internet devices, 74.50% of respondents admitted that they sometimes overlook significant tasks. Additionally, 30.90% of respondents reported that they feel stressed if they do not spend time on Internet devices, whereas the rest expressed otherwise. Regarding conflicts, 36.4% of respondents stated that it happens very frequently, while 49.1% shared their opinion that it occurs occasionally due to the use of Internet devices.

Table 1: Mean and standard deviation associated with adolescent participation online on Internet devices

	Indicator	Mean	X	Std. Deviation
X1	Saliency	Duration of time spent on Internet devices	2.78	1.10
X2	Mood Modification	Spending time online on internet devices is aimed at feeling better	3.00	0.86
X3	Mood Modification	Spend time on online devices to reduce stress	2.96	0.74
X4	Problems	Neglecting other important matters while spending time on internet devices	1.56	1.07
X5	Withdrawal	Unpleasant feeling when the internet devices are suddenly disconnected	2.16	1.07
X6	Problems	Study time is limited due to time spent on internet devices.	2.00	0.77
X7	Tolerance	More time to spend internet device, especially when online learning	2.24	1.07
X8	Relapse	Inability of parents to reduce the duration of adolescent Internet abuse	2.07	0.94
X9	Conflict	Spending time on internet devices disrupts contact with family/friends	2.27	0.71

Based on the information from the above table, with an average value of 2.00 representing 'sometimes' and 3.00 representing 'often' as criteria, we can predict that excessive use of Internet devices will have some impact on their academic learning. Additionally, for academic performance, data from the students participating in this study reveal that those who excessively use Internet devices scored an average of 88.34, which falls under grade B (good performance) on the grading scale, whereas 9 out of 55 students received a grade of C (satisfactory performance). For the same category, their average school result in the second semester decreased to 88.32.

Table 2: Correlation between Internet addiction and academic achievement

		X	Y
X	Pearson Correlation	1	-.907
	Sig. (2-tailed)		0.000
	N	55	55
Y	Pearson Correlation	-.907	1
	Sig. (2-tailed)	0.000	
	N	55	55

Meanwhile, according to Table 2, since $n = 55$ and $p < .05$ (p -value = 0.000), a strong relationship has been observed between academic Internet addiction and academic achievement. As a result, the null hypothesis is rejected.

H0: There is no significant relationship between Internet addiction and academic achievement scores among primary school students in Aceh.

The analysed data indicate a significant negative correlation between respondents' academic performance and Internet addiction ($r = -.907$). This not only leads to grade deterioration but also causes excessive dependency on Internet content among students. The findings of this study contradict some previous research (Anggraeni & Wihardja, 2020; Iyitoğlu & Çeliköz, 2020), which stated that Internet content does not negatively impact students' academic achievement. However, multiple studies support our findings that Internet-addicted students generally perform poorly in school (Jackson *et al.*, 2011; Jang *et al.*, 2005; Sahin *et al.*, 2016).

The impact of Internet and Internet content addiction on students' academic performance has been analysed across different school levels. Consistent with the present study, Adžić *et al.* (2021) suggest that students should not use Internet devices for more than four hours per day. On the other hand, Islam *et al.* (2020) argue that two hours of daily online activity can bring positive outcomes for students.

Based on their research, it is reasonable to conclude that spending more time on online devices than the recommended limit is one of the main reasons for academic decline. Therefore, it is recommended that students spend less than three hours per day on online devices.

However, there are some limitations to this study. First, it was not possible to assess how different variables influence each other. For example, poor family functioning or parental mental health issues may affect children's behavioural problems and act as confounding variables. Second, despite reducing the number of questions, some children struggled to accurately answer the survey questions due to difficulties in understanding specific words, particularly when estimating the time spent on gaming. As a result, since they reported approximate durations instead of exact hours, their responses were adjusted to a 4-point scale.

Conclusion

In this study, a correlational research design was used, where a questionnaire was applied to collect data through a survey. Correlational research design is generally used to determine the relationship between two or more variables. This design is appropriate for this study as it helps in determining the relationship between Internet addiction and academic achievement.

The participants of the study were primary school students from Aceh, selected through a purposive sampling method. Although this method does not represent the entire population, the participants were able to provide the necessary information relevant to the study. A total of 55 participants took part in the study, filling out and submitting the survey questionnaire. Of these, 25 (45%) were female and 30 (55%) were male.

For statistical analysis, percentages, weighted averages, and Pearson's correlation coefficient were used. According to the research objective, data related to students' Internet addiction and academic success were collected. A questionnaire was developed based on the gaming addiction scale provided by Lemmens *et al.* (2009). The questionnaire measured seven

indicators of addiction: significance, tolerance, mood change, repetition, withdrawal, conflict, and problem. Four answer options were provided for each indicator:

- i). Rarely,
- ii). Sometimes,
- iii). Often, and
- iv). Very often.

To evaluate students' academic success, their school reports from two semesters were collected and compared with individual responses. Pearson's product-moment correlation coefficient and independent samples t-test were applied to test the hypotheses of the study. Data analysis was completed at the 0.05 level of significance.

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