



The Effect of Screen Media Use on School Performance at SMA Negeri 4 Binjai City

Jovanka Theresia Tarigan¹, Monalisa Elizabeth², Christina JR. Esmaralda Lumbantobing³

Faculty of Medicine, Dentistry and Health Science, Universitas Prima Indonesia, Indonesia^{1,3}

PUI Phyto Degenerative & Lifestyle Medicine, Universitas Prima Indonesia, Indonesia²

Email: tariganjovanka270@gmail.com¹, monalisaelizabeth@yahoo.com²,

lumbantobingchris@gmail.com³

ABSTRACT

The pervasive use of screen media among high school students has raised concerns about its impact on academic performance. While digital devices offer educational benefits, excessive use for entertainment may negatively affect learning outcomes. This study aimed to analyze the effect of screen media use on school performance among students at SMA Negeri 4 Binjai City. An observational analytical study with a cross-sectional design was conducted in July 2025 involving 240 students selected through proportional stratified random sampling. Data on screen media types, usage duration, and activities (learning, movie watching, gaming, social media) were collected using validated questionnaires, while academic achievement was measured using school report cards. The chi-square test was used for data analysis with a significance level of $p < 0.05$. The majority of respondents (61.3%) used screen media for extended durations (>2 hours daily). Smartphones were the most prevalent device (82.5%). Significant correlations were found between screen media usage and academic achievement, particularly for duration ($p = 0.000$), movie watching ($p = 0.000$), gaming ($p = 0.000$), and social media use ($p = 0.000$). Learning activities through screen media showed a positive correlation with better academic performance ($p = 0.001$). Screen media usage patterns significantly affect students' academic achievement. High-duration usage and entertainment-oriented activities are associated with lower school performance, while educational use correlates with better outcomes. These findings highlight the need for balanced screen time management and guided media usage in educational settings.

Keywords: screen media, duration, activities, school achievement

INTRODUCTION

Advances in information and communication technology in the digital era have affected many aspects of life, especially in education (Morozov & Kozlov, 2019; Ratheeswari, 2018). Gadgets and television are types of screen media that form a fundamental part of students' daily routines (Marpuah, Zahari, Kirin, Mahmudah, & Normawati, 2021; Okika & Blessing, 2017). Screen media is used as a means of learning and entertainment, such as watching movies, playing games, and engaging with social media.

Research conducted by Dr. Kristiana Siste, Sp.KJ (K), on screen media addiction among teenagers in Jakarta revealed that around 31.4% of teenagers experience addiction. The risk posed by screen media addiction is a decrease in school achievement due to impaired concentration and reduced motivation to learn (Pramesti, 2025). School achievement refers to the results students obtain from the teaching and learning process at school. Schools use an assessment system related to the Minimum Completeness Criteria (KKM) score in each student's report card to determine school achievement (Apriyanti, 2017).

The use of gadgets such as smartphones, laptops, computers, and tablets has become a major part of teenagers' daily activities (Toh, Howie, Coenen, & Straker, 2019). According to the Ministry of Communication and Information, gadget use in Indonesia is very high, especially among school-age children, reaching 98% (KOMINFO, 2023). The increasing development of gadgets brings both advantages and disadvantages for teenagers (Odgers &

Jensen, 2020). Gadgets can serve as effective learning tools (Mujib, 2013). The more often teens use their devices, the more they tend to access the internet, which can improve learning outcomes (Li, Snow, & White, 2015). Gadget use can enhance imagination and intellectual abilities in adolescents.

Excessive gadget use can make learning more difficult for teenagers. Another factor influencing adolescents' school performance is their tendency to rely on gadgets rather than focusing on learning. Research by Wati (2022) shows that adolescents who spend more than five hours a day using gadgets generally have lower school achievement than those who use gadgets for less than two hours per day, indicating that excessive and unregulated gadget use can hinder school achievement.

Before the rapid advancement of technology, television was a screen media that provided various educational shows for teenagers (Joshi & Rose, 2018). Television shows at that time focused on learning and education programs that supported the learning process (Khan & Paracha, 2019). Currently, television shows have changed significantly, with most focusing more on entertainment than education, making television less effective as an educational tool amid rapid technological developments (Abidin, 2019).

Research by Zainal Abidin and Riski Nurlita Jayant (2019) states that television shows significantly influence learning quality. Most teens feel distracted by television shows while doing homework assigned by teachers (Mrazek et al., 2021). Excessive television viewing can affect adolescents' concentration during learning at school, impacting school achievement (Abidin, 2019).

According to Kusuma Rini & Huriah (2020), adolescence is a crucial phase in shaping and developing personality. Unstable and prolonged emotions during this period can affect growth and development. Therefore, parents' close supervision is very important to minimize negative impacts, making the parental role in setting boundaries essential (Sanders & Turner, 2018). Research by Windawati (2023) supports this, stating that prolonged screen media use can interfere with concentration, anxiety, depression, and stress in adolescents.

Research by Ferdinanda S & Fransheine (2024) suggests that adolescents can reduce excessive screen media use by improving peer relationships. Screen media use can be replaced with reading books and engaging in recreational activities to improve life quality (Edwards & Larson, 2020). According to Heer and Keruanan (2023), parents must actively direct, supervise, and limit adolescents' screen media use. For more effective control, parents should frequently interact with adolescents and set specific times for screen media use to enforce rules.

Based on the above background, the researcher aims to study the effect of screen media use on school achievement at SMA Negeri 4 Binjai City (Muhammad-Jamiu, 2023). This research is expected to provide both theoretical and practical benefits. Theoretically, the study contributes to educational psychology and media studies by providing empirical evidence on the relationship between screen media usage patterns and academic performance among Indonesian high school students (Feng, Ren, & Shi, 2025). Practically, the findings can guide educators and school administrators at SMA Negeri 4 Binjai City to develop effective policies on screen media usage among students (Yusup & Ahmad, 2024). For parents, this research highlights the importance of supervising and regulating screen time to support children's academic achievement (Cerniglia, Cimino, & Ammaniti, 2021). For students, it raises awareness about the impact of screen media usage patterns on learning outcomes and encourages more productive use of digital technology (Gan, Menkhoff, & Smith, 2015).

RESEARCH METHOD

This study used an analytical observational design with a cross-sectional approach to analyze the relationship between screen media use patterns and school achievement at a given time. The research was carried out at SMA Negeri 4 Binjai City on July 20-21, 2025, with a population covering all students in grades X, XI, and XII. A sample of 240 respondents was selected through proportional stratified random sampling to ensure the representation of each grade level, with the sample size calculated using the Slovin formula at a margin of error of 5%. The inclusion criteria include active students who are willing to participate and have obtained parental consent, while students with special needs and who were absent during the data collection are excluded. Independent variables include the pattern of screen media use, namely the type of device, duration of use, and activities such as learning, watching movies, playing games, and social media, while dependent variables are academic achievement measured based on report card scores. Data collection was carried out using a structured questionnaire that had been validated through expert judgment and tested for reliability with a Cronbach's alpha coefficient of 0.85. Data were analyzed univariately to describe the frequency distribution and bivariously using the Chi-Square test with a significance level of $p < 0.05$ using SPSS 25.0 software. The ethical aspect is considered through the consent of the school as well as informed consent from participants and parents, by ensuring the confidentiality of respondents' data during the research process.

RESULTS AND DISCUSSION

This study, examining the influence of screen media use on school performance at SMA Negeri 4 Binjai City, was conducted on July 21-22, 2025. The research sample was taken using Proportional stratified random sampling. A total of 240 respondents met the inclusion criteria.

Distribution of Respondent Characteristics

Table 1. Distribution of classes by gender

Class	Gender				Total	
	Man		Woman		(n)	(%)
	(n)	(%)	(n)	(%)		
X	39	16,3	45	18,8	84	35,0
XI	35	14,6	45	18,8	80	33,3
XII	27	11,3	49	20,4	76	31,7
Total	101	42,1	139	57,9	240	100,0

Source: Primary data processed, 2025

Based on Table 1 of the distribution of classes by gender, overall the most respondents were women amounting to 139 people (57.9%), consisting of class X as many as 45 people (18.8%), class XI as many as 45 people (18.8%), and class XII as many as 49 people (20.4%). Male respondents amounted to 101 people (42.1%), consisting of class X as many as 39 people (16.3%), class XI as many as 35 people (14.6%), and class XII as many as 27 people (11.3%).

Table 2. Distribution of Classes by Age

Class	Age						Total	
	14-15		16-17		18-19		(n)	(%)
	(n)	(%)	(n)	(%)	(n)	(%)		
X	68	28,3	16	6,7	0	0,0	84	35,0
XI	23	9,6	57	23,8	0	0,0	80	33,3
XII	0	0,0	68	28,3	8	3,3	76	31,7
Total	91	37,9	141	58,8	8	3,3	240	100,0

Source: Primary data processed, 2025

Based on Table 2 of the distribution of classes by age, overall, the most respondents in the age group of 16-17 years amounted to 141 people (58.8%), consisting of class X as many as 16 people (6.7%), class XI as many as 57 people (23.8%), and class XII as many as 68 people (28.3%). Respondents in the age group of 14-15 years amounted to 91 people (37.9%), consisting of class X as many as 68 people (28.3), class XI as many as 23 people (9.6%). Respondents in the age group of 18-19 years amounted to 8 people (3.3%), consisting of 8 people (3.3) from class XII.

Table 3. Distribution of Screen Media Types by Gender

Types of Screen Media		Gender				Total	
		Man		Woman			
		(n)	(%)	(n)	(%)	(n)	(%)
Gadget	Smartphone	79	32,9	119	49,6	198	82,5
	Laptop	7	2,9	7	2,9	14	5,8
Television		15	6,3	13	5,4	28	11,7
Total		101	42,1	139	57,9	240	100,0

Source: Primary data processed, 2025

Based on Table 3 of the distribution of screen media types by gender, overall the most respondents used the type of screen media such as *smartphones* amounting to 198 people (82.5%), consisting of 119 women (49.6%) and 79 men (32.9). Respondents with the type of television screen media amounted to 28 people (11.7%), consisting of 13 women (5.4%) and 15 men (6.3%). Respondents with the type of gadget screen media such as laptops amounted to 14 people (5.8%), consisting of 7 women (2.9%) and 7 men (2.9%).

Table 4. Distribution of Screen Media Duration by Gender

Screen Media Duration		Gender				Total	
		Man		Woman			
		(n)	(%)	(n)	(%)	(n)	(%)
Low		2	0,8	7	2,9	9	3,8
Keep		29	12,2	55	22,9	84	35,0
Tall		70	29,2	77	32,1	147	61,3
Total		101	42,1	139	57,9	240	100,0

Source: Primary data processed, 2025

Based on Table 4 of the distribution of screen media duration by gender, overall the most respondents used high-duration screen media amounting to 147 people (61.3%), consisting of 77 women (32.1%) and 70 men (29.2). Respondents with moderate duration amounted to 84 people (35.0%), consisting of 55 women (22.9%) and 29 men (12.2%). Respondents with low duration amounted to 9 people (3.8%), consisting of 7 women (2.9%) and 2 men (0.8%).

Table 5. Distribution of Screen Media Activities for Learning by Gender

Learn		Gender				Total	
		Man		Woman			
		(n)	(%)	(n)	(%)	(n)	(%)
Disagree		47	19,6	32	13,3	79	32,9
Neutral		17	7,1	17	7,1	34	14,2
Agree		37	15,4	90	37,5	127	52,9
Total		101	42,1	139	57,9	240	100,0

Source: Primary data processed, 2025

Based on Table 5 of the distribution of screen media activities for learning by gender, overall the most respondents chose to agree with the use of screen media for learning amounting to 127 people (52.9%), consisting of 90 women (37.5%) and 37 men (15.4). The respondents who voted against were 79 people (32.9), consisting of 47 men (19.6%) and 32 women (13.3%). Respondents who chose neutral amounted to 34 people (14.2%), consisting of 17 women (7.1%) and 17 men (7.1%).

Table 6. Distribution of Screen Media Activity for Watching Movies by Gender

Watch Movies	Gender				Total	
	Man		Woman			
	(n)	(%)	(n)	(%)	(n)	(%)
Disagree	33	13,8	85	35,4	118	49,2
Neutral	19	7,9	20	8,3	39	16,3
Agree	49	20,4	34	14,2	83	34,6
Total	101	42,1	139	57,9	240	100,0

Source: Primary data processed, 2025

Based on Table 6 of the distribution of screen media activities to watch movies by gender, overall the most respondents chose not to agree with the use of screen media to watch movies totaling 118 people (49.2%), consisting of 85 women (35.4%) and 33 men (13.8). The respondents who voted to agree amounted to 83 people (34.6), consisting of 49 men (20.4%) and 34 women (14.2%). Respondents who voted neutral amounted to 39 people (16.3%), consisting of 20 women (8.3%) and 19 men (7.9%).

Table 7. Distribution of Screen Media Activity for Gaming by Gender

Playing Games	Gender				Total	
	Man		Woman			
	(n)	(%)	(n)	(%)	(n)	(%)
Disagree	28	11,7	65	27,1	93	38,8
Neutral	14	5,8	35	14,6	49	20,4
Agree	59	24,6	39	16,3	98	40,8
Total	101	42,1	139	57,9	240	100,0

Source: Primary data processed, 2025

Based on Table 7 of the distribution of screen media activities for playing *games* by gender, overall the most respondents chose to agree with the use of screen media for *playing games* amounting to 98 people (40.8%), consisting of 59 men (24.6%) and 39 women (16.3%). The respondents who voted against the agreement amounted to 93 people (38.8), consisting of 65 women (27.1%) and 28 men (11.7%). Respondents who voted neutral amounted to 49 people (20.4%), consisting of 35 women (14.6%) and 14 men (5.8%).

Table 8. Distribution of Screen Media Activity for Social Media Play by Gender

Play Social Media	Gender				Total	
	Man		Woman			
	(n)	(%)	(n)	(%)	(n)	(%)
Disagree	32	31,7	49	35,3	81	33,8
Neutral	20	19,8	20	14,4	40	16,7
Agree	49	48,5	70	50,4	119	49,6
Total	101	42,1	139	57,9	240	100,0

Source: Primary data processed, 2025

Based on Table 8 of the distribution of screen media activities for playing social media by gender, overall the most respondents chose to agree with the use of screen media to play *games* amounting to 119 people (49.6%), consisting of 70 women (50.4%) and 49 men (48.5%). The respondents who voted against agreed amounted to 81 people (33.8), consisting of 49 women (35.3%) and 32 men (31.7%). Respondents who chose neutrality amounted to 40 people (20.4%), consisting of 20 men (19.8%) and 20 women (19.8%).

Table 9. The Effect of Screen Media Duration on School Performance

Duration	School Achievement				Total		P value
	Tall		Keep				
	(n)	(%)	(n)	(%)	(n)	(%)	
Low	9	3,8	0	0,0	9	3,8	0,000
Keep	82	34,2	2	0,8	84	35,0	
Tall	69	28,7	78	32,8	147	61,3	
Total	160	66,7	80	33,3	240	100,0	

Source: Primary data processed, 2025

Based on Table 9, a p value of 0.000 was obtained, indicating that there was a significant influence between the duration of screen media use on school performance. Overall, the most respondents used high-duration screen media, namely 147 people (61.3%). In this group, 78 people (32.8%) achieved moderate school achievements, while 69 people (28.7%) achieved high achievements. Respondents with moderate duration in using screen media amounted to 84 people (35%). Of this group, 82 people (34.2%) had high achievements, and only 2 people (0.8%) achieved moderately. In addition, 9 people (3.8%) of respondents who used low-duration screen media all managed to obtain high school achievements.

Table 10. Effect of Screen Media Activities for Learning on School Performance

Learn	School Achievement				Total		P value
	High		Medium		(n)	(%)	
	(n)	(%)	(n)	(%)			
Disagree	37	15,4	42	17,5	79	32,9	0,000
Neutral	19	7,9	15	6,3	34	14,2	
Agree	104	43,3	23	9,6	127	52,9	
Total	160	66,7	80	33,3	80	100,0	

Source: Primary data processed, 2025

Based on Table 10, a p value of 0.000 was obtained, indicating that there was a significant influence between screen media activities for learning on school achievement. Overall, as many as 127 respondents (52.9%) stated that they agreed to use screen media in the learning process. Of this group, 104 people (43.3%) achieved high school achievement, while 23 people (9.6%) were at a moderate level of achievement. On the other hand, 79 respondents (32.9%) disagreed with the use of screen media for learning. In this group, 42 people (17.5%) had moderate achievement, and 37 people (15.4%) achieved high. Meanwhile, 34 respondents (14.2%) were neutral towards the use of screen media in learning, with 19 people (7.9%) showing high achievement and 15 people (6.3%) having moderate achievements.

Table 11. Effect of Screen Media Activity for Watching Movies on School Performance

Watch Movies	School Achievement				Total		P value
	High		Medium		(n)	(%)	
	(n)	(%)	(n)	(%)			
Disagree	106	44,2	12	5,0	118	49,2	0,000
Neutral	20	8,3	19	7,9	39	16,3	

Watch Movies	School Achievement				Total		P value
	High		Medium				
	(n)	(%)	(n)	(%)	(n)	(%)	
Agree	34	14,2	49	20,4	83	34,6	0,000
Total	160	66,7	80	33,3	240	100,0	

Source: Primary data processed, 2025

Based on Table 11, a p value of 0.000 was obtained, indicating that there was a significant influence between the activity of using screen media to watch movies on school achievement. Overall, 83 people (34.6%) said they agreed with their movie-watching habits. Of this group, 34 people (14.2%) had high school achievements, while 49 people (20.4%) had moderate achievements. A total of 118 respondents (49.2%) disagreed with the habit of watching movies. Among them, 106 people (44.2%) had high school achievement and 12 people (5.0%) were moderately performing. Meanwhile, 39 respondents (16.3%) were neutral about film-watching activities. Of this group, 20 people (8.3%) had high achievement and 19 people (7.9%) had moderate achievement.

Table 12. Effect of Screen Media Activity for Gaming on School Performance

Playing Games	School Achievement				Total		P value
	High		Medium				
	(n)	(%)	(n)	(%)	(n)	(%)	
Disagree	85	35,4	8	3,3	93	38,8	0,000
Neutral	30	12,5	19	7,9	49	20,4	
Agree	45	18,8	53	22,1	98	40,8	
Total	160	66,7	80	33,3	240	100,0	

Source: Primary data processed, 2025

Based on Table 12, a p value of 0.000 was obtained, indicating that there was a significant influence between the activity of using screen media to play *Game* on school performance. Overall, 98 people (40.8%) said they agreed to play the game. Of this group, 45 people (18.8%) had high school achievements, while 53 people (22.1%) had moderate achievements. A total of 93 respondents (38.8%) disagreed to play games. In this group, 85 people (35.4%) had high school achievement and 8 people (3.3%) had moderate achievement. Meanwhile, 49 respondents (20.4%) were neutral about gaming activities. Of them, 30 people (12.5%) achieved high school achievement and 19 people (7.9%) achieved moderate achievement.

Table 13. The Effect of Screen Media Activities for Social Media Play on School Performance

Play Social Media	School Achievement				Total		P value
	High		Medium				
	(n)	(%)	(n)	(%)	(n)	(%)	
Disagree	67	27,9	14	5,8	81	33,8	0,000
Neutral	38	15,8	2	0,8	40	16,7	
Agree	55	22,9	64	26,7	119	49,6	
Total	160	66,7	80	33,3	240	100.0	

Source: Primary data processed, 2025

Based on Table 13, a p value of 0.000 was obtained, indicating that there was a significant influence between the activity of using screen media to play social media on school achievement. Overall, 119 people (49.6%) said they agreed to play social media. Of this group, 55 people (22.9%) had high school achievements, while 64 people (26.7%) had moderate

achievements. Respondents who disagreed with playing social media totaled 81 people (33.8%), with 67 people (27.9%) having high performance and 14 people (5.8%) performing moderately. Meanwhile, as many as 40 people (16.7%) of respondents were neutral towards playing social media. A total of 38 people (15.8%) had high achievement and 2 people (0.8%) had moderate achievement.

From the results of the study involving 240 students of SMA Negeri 4 Binjai City, there were 139 female students from classes X, XI, and XII. The largest age group is students aged 16 to 17 years, with a total of 141 people.

The results of the research on the distribution of screen media types by gender stated that female respondents used more types of smartphone screen media with a total of 119 people. According to research by Hablaini (2020), as many as 150 respondents, there are 80 female respondents who use screen media such as *smartphones* every day. The research conducted by Irfan (2020) conducted a study at SMA Negeri 2 Majene City with 100 respondents and found that as many as 55 female respondents used *smartphones* more often in daily life because they tended to use them for social media playing activities, while men used them to play *games*. Research conducted by Gifary and Kurnia (2020), stated that *smartphones* are a type of screen media that is widely used by students (98.7%), the number of female users reached 69.3%. Various studies show that *smartphones* are a screen medium that is widely used by women.

The results of the research on the distribution of screen media duration by gender stated that women use screen media with a high duration of more than 2 hours every day. According to research by Choliz (2012) found that women spend more than two hours every day using screens compared to men. According to Park and Lee (2014), women spend more time using screens than men because of gender differences in screen media use activities. Women use screens to improve social relationships with their friends and must always be connected to social media, making it difficult for them to escape from screen media and men use screen media only for their needs. Various studies show that women tend to use screen media with a high duration, which is more than two hours every day, compared to men. The longer duration of use is related to women's tendency to maintain social relationships and stay connected through social media, while men generally use screen media only to meet certain needs.

The results of the research showed that women used screen media more for learning activities and playing social media on screen media, while men used screen media to watch movies and play *games*. Research by Watten and Volden (2018) found that women use screen media more to learn and play social media, while men prefer to play *games* and watch movies. According to Pawlowska and Potembska (2018), men use screen media for personal entertainment, but women use it to learn and establish relationships with many people. According to research by Novita and Aruan (2021), women use social media and study more often than men who use screen media to play *games* and watch movies. Various studies show that women use screen media more to learn and play social media, while men use it for entertainment, such as watching movies and playing games. Based on the study, women tend to use screen media for learning activities and playing social media while men use screen media to watch movies and play games.

The results showed that there was a significant influence of the duration of screen media use on school achievement at SMA Negeri 4 Binjai City with a p value = 0.000 ($p < 0.05$). The higher the duration of screen media use, the lower the school performance. The results of this study are in line with research conducted by Sandi (2021), the use of screen media with a duration of more than 2 hours every day has been proven to cause a decrease in learning concentration and is directly correlated with a decrease in school achievement. According to Manumpil, et al (in Mardiyanti, et al., 2018) excessive use of screen media in adolescents sometimes causes problems in learning outcomes (Hasanah & Kumalasari in Nurnalasari & Wulandari, 2018). Teenagers' learning time is taken up by the screen media they have. Not only

at home, but at school, teenagers also play screen media with their friends after school until they forget time and often come home late. Based on the study, the use of screen media with a duration of > 2 hours every day affects school performance.

The results showed that there was a significant influence of the use of screen media for learning activities to watch movies, play games, and social media on school achievement at SMA Negeri 4 Binjai City with a p value $p = 0.000$ ($p < 0.05$). The more students who agree with the use of screen media to watch movies, play games, and social media, the more students who agree with the use of screen media for learning result in high school achievement.

Research conducted by Nurhalifah (2024) found that adolescents who use screen media for learning activities can improve school achievement because screen media is petrified in learning activities. According to research by Ma'arifah (2020), adolescents who watch movies have an effect on school performance because they rarely learn to review lessons at home. This is in line with research conducted by Putri, Nurwati, and S. (2016) which found that the use of screen media to play social media has a negative impact, one of which is interfering with the success of school achievement and causing adolescents to prefer to use social media instead of doing schoolwork. According to Anik (2019), adolescents who are addicted to social media will have an impact on their personal lives, such as receiving assignments from teachers that are not completed immediately and slow in completing homework, resulting in a decrease in school achievement. According to a study conducted by Cahya (2019) at SMA Negeri 1 Kalasan stated that playing games is used as entertainment to make teenagers happy, so they choose to play games instead of studying. Based on the study, the use of screen media for learning activities can improve school achievement compared to the use of screen media for film-watching, playing games, and social media which causes school achievement to be moderate.

CONCLUSION

The research at SMA Negeri 4 Binjai City shows that screen media usage significantly influences students' academic performance, with both duration and activity type playing key roles. Using screen media for learning positively impacts school achievement, while engaging in activities like watching movies, gaming, and social media correlates with lower academic outcomes. This suggests that not just how long students use screen media but how they use it critically affects their learning success. Future research could explore interventions to optimize screen media use patterns among students and investigate long-term effects on academic performance across different educational levels and contexts.

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