



The Influence of Self-Control on the Level of Smartphone Addiction among Vocational High School Students

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ABSTRACT

This study aimed to determine the levels of self-control and smartphone addiction and to analyse the effect of self-control on smartphone addiction among students of public vocational high schools in Ciamis Regency. The study employed a quantitative approach, using descriptive methods and simple linear regression. The research instruments consisted of self-control and smartphone addiction scales that had been tested for validity and reliability. The findings revealed that both students' self-control and smartphone addiction levels were in the moderate category. The results of the simple linear regression analysis indicated that self-control had a significant negative effect on smartphone addiction. This means that the higher the students' self-control, the lower their level of smartphone addiction. These findings highlight the importance of strengthening self-control as a preventive strategy to reduce smartphone addiction tendencies among adolescents and provide a basis for developing self-regulation-based guidance and counselling services in schools. The implications of this study suggest that strengthening self-regulation skills should be integrated into preventive and intervention programs to support healthy, adaptive technology use among adolescents.

KATA KUNCI

Pengendalian Diri;
Kecanduan ponsel pintar;
Siswa Sekolah Menengah
Kejuruan

ABSTRAK

Penelitian ini bertujuan untuk mengetahui tingkat self-control dan adiksi smartphone serta menganalisis pengaruh self-control terhadap adiksi smartphone pada siswa SMK Negeri se-Kabupaten Ciamis. Penelitian menggunakan pendekatan kuantitatif dengan metode deskriptif dan regresi linear sederhana. Instrumen penelitian berupa skala self-control dan skala adiksi smartphone yang telah diuji validitas dan reliabilitasnya. Hasil penelitian menunjukkan bahwa tingkat self-control dan adiksi smartphone siswa berada pada kategori sedang. Analisis regresi linear sederhana menunjukkan bahwa self-control berpengaruh negatif dan signifikan terhadap adiksi smartphone. Artinya, semakin tinggi self-control siswa, semakin rendah tingkat adiksi smartphone yang dialami. Temuan ini menegaskan pentingnya penguatan self-control sebagai strategi preventif dalam mengurangi kecenderungan adiksi smartphone pada remaja serta menjadi dasar pengembangan layanan bimbingan dan konseling berbasis regulasi diri di sekolah. Implikasi penelitian ini menunjukkan bahwa penguatan kemampuan regulasi diri perlu diintegrasikan dalam layanan preventif dan intervensif untuk mendukung penggunaan teknologi yang sehat dan adaptif pada remaja.

1. INTRODUCTION

Advances in information and communication technology over the last decade have significantly transformed adolescents' social interactions and lifestyles. Smartphones no longer function merely as communication tools but have also become the primary means of accessing information, entertainment, social networking platforms, online

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games, and academic activities. Global reports indicate that adolescents are the most active internet and smartphone users among age groups (Pew Research Centre, 2022). In Indonesia, data from the Badan Pusat Statistik (2022) show that more than two-thirds of the population aged five years and above own mobile phones, with the highest usage rates found among school-age groups. The high smartphone penetration indicates that digital technology has become an inseparable part of adolescents' daily lives.

Although smartphones provide benefits in terms of information access and learning opportunities, excessive smartphone use also poses various psychological and social risks. From a neuropsychological perspective, adolescence is a developmental period characterised by an imbalance between the more rapidly developing limbic system and the prefrontal cortex, thereby increasing tendencies toward impulsivity and risk-taking (Casey et al., 2019). This condition makes adolescents more vulnerable to various forms of behavioural addiction, including technology-based addiction. In this context, uncontrolled smartphone use may develop into addictive behaviour that affects adolescents' academic, social, and emotional functioning.

Conceptually, smartphone addiction is understood as a form of behavioural addiction characterised by excessive use, loss of control, tolerance, withdrawal symptoms, and disruptions to daily activities (Kwon et al., 2013). Behavioural addiction models explain that non-substance-related activities may activate the dopaminergic reward system in ways similar to substance addiction, thereby encouraging compulsive behaviour (Brand et al., 2019). Previous studies have shown that individuals with tendencies toward smartphone addiction often experience anxiety when separated from their devices and have difficulty limiting the duration of smartphone use (Bian & Leung, 2014).

Various meta-analytic studies have demonstrated that smartphone addiction is significantly associated with depression, anxiety, stress, sleep disturbances, and declining academic performance among adolescents (Elhai et al., 2017; Sohn et al., 2019). In educational contexts, uncontrolled smartphone use may reduce concentration during learning, decrease academic engagement, and increase procrastination (Samaha & Hawi, 2016). A longitudinal study by Domoff et al. (2020) also found that high levels of screen time are associated with emotional regulation problems and difficulties in self-control among adolescents. These findings emphasise that smartphone addiction is not merely a digital lifestyle phenomenon but also a serious psychological and academic issue.

One psychological factor that plays an important role in addictive behaviour is self-control. Self-regulation theory holds that self-control is an individual's ability to regulate thoughts, emotions, and behaviours to achieve long-term goals and delay immediate gratification (Baumeister & Vohs, 2007). Individuals with high levels of self-control tend to demonstrate better self-adjustment, optimal academic performance, and lower involvement in problematic behaviours (Tangney, Baumeister, & Boone, 2004). From a neuropsychological perspective, self-control is associated with executive functions in the prefrontal cortex, which play a role in decision-making and impulse regulation (Duckworth & Steinberg, 2015).

Numerous empirical studies have shown that self-control is negatively associated with smartphone addiction. Kim et al. (2018) found that low self-control significantly predicted higher tendencies toward smartphone addiction among adolescents. Similar findings were reported by Gökçearsan et al. (2016), who found that self-control was a significant predictor of problematic mobile phone use among university students. Furthermore, a meta-analysis conducted by Li et al. (2021) confirmed that self-control functions as a protective factor against various forms of digital addiction, including internet and social media addiction. These findings strengthen the argument that self-regulation abilities play an important role in adaptive management of digital technology use.

Although the relationship between self-control and smartphone addiction has been widely studied, most previous research has focused on university students or adolescents living in urban areas. Studies specifically examining vocational high school students remain relatively limited. In fact, vocational high school students possess unique characteristics as adolescents in vocational education, as they interact more intensively with technology for practical training, skills-based learning, and work-readiness preparation. These conditions may increase dependence on smartphones while simultaneously increasing the risk of uncontrolled use. In addition, research conducted within regional contexts, particularly in Ciamis Regency, remains scarce. Differences in social environments, culture, and access to technology may influence adolescents' smartphone usage patterns, requiring more context-specific investigations.

Based on these conditions, there remains a research gap in the limited number of studies specifically examining the influence of self-control on smartphone addiction among vocational high school students within regional contexts. Therefore, this study not only replicates previous findings but also expands the discussion of the role of self-control in digital addiction among adolescents in vocational education settings.

The novelty of this study lies in its empirical examination of the influence of self-control on smartphone addiction among public vocational high school students in Ciamis Regency within the context of vocational education. This study also has practical relevance for the development of guidance and counselling services that strengthen self-regulation. Interventions such as time management training, self-monitoring, and cognitive restructuring are effective in reducing technology-based addictive behaviours.

This study aims to: (1) analyse the level of self-control among public vocational high school students in Ciamis Regency, (2) analyse the level of smartphone addiction among students, and (3) examine the influence of self-control on smartphone addiction. Theoretically, this study will enrich the field of guidance and counselling by highlighting the role of self-control as a protective factor against digital addiction. The findings are expected to serve as a foundation for developing preventive and intervention-based services that support healthy, adaptive, and responsible technology use among vocational high school adolescents.

2. METHOD

2.1 Research Design

This study employed a quantitative research design. The quantitative approach was selected because it aligns with the study's purpose: to determine the degree of influence of self-control on smartphone addiction among vocational high school adolescents in Ciamis Regency. This approach was used to test theories, identify relationships among variables, and provide descriptions based on numerical data, as explained by John W. Creswell (2012). The research design used in this study was correlational. Correlational research utilizes statistical methods to measure the relationship or influence between two or more variables. The purpose of correlational research is to reveal the degree of association among variables without manipulating them. In this study, a correlational design was used to examine the influence of self-control on smartphone addiction.

2.2 Research Subjects

This study was conducted at public vocational high schools throughout Ciamis Regency. The participants were active students enrolled in seven public vocational high schools within the regency. A total of 100 students participated in the study and were selected based on specific criteria. The participants were adolescents aged 15–18 years who were actively enrolled as students during the 2025/2026 academic year, regularly used smartphones in their daily activities, and voluntarily agreed to participate by completing the research questionnaire.

The population in this study comprised all vocational high school students in Ciamis Regency, totalling 8,069. The population included students from SMKN 1 Ciamis, SMKN 2 Ciamis, SMKN 1 Cipaku, SMKN 1 Kawali, SMKN 1 Panjalu, SMKN 1 Rajadesa, and SMKN 1 Panumbangan.

The sample represented a portion of the population considered capable of representing the entire population. The sampling technique used was probability sampling with a cluster sampling method. The sample size was determined using the Slovin formula with a 10% margin of error, resulting in a total sample of 100 students.

2.3 Data Collection

Data collection was conducted using Likert-scale questionnaires. The research instruments consisted of two scales: a self-control scale and a smartphone addiction scale. The self-control instrument consisted of 44 statement items. The validity test results indicated that 39 items were valid and 5 were invalid. Reliability testing using the Cronbach's Alpha formula produced a coefficient of 0.839, indicating that the instrument had very high reliability. The smartphone addiction instrument utilised the Smartphone Addiction Scale (SAS) developed by Kwon et al. (2013), which had previously been translated into Indonesian. This scale consisted of 45 statement items covering six dimensions: daily-life disturbance, positive anticipation, withdrawal symptoms, cyberspace-oriented relationships, overuse, and tolerance. The validity testing results showed that 35 items were valid, while 10 items did not meet the validity criteria. The reliability test yielded a Cronbach's Alpha coefficient of 0.775, indicating high reliability. The data obtained from respondents' questionnaire responses were subsequently processed to describe each variable and examine the relationship between the two variables.

2.4 Data Analysis

Data analysis techniques were employed to answer the research questions established in this study. The data analysis process included descriptive and inferential statistical analyses. Descriptive analysis was used to describe the levels of self-control and smartphone addiction based on respondents' scores. Categorisation was conducted using formulas based on the mean and standard deviation, as described in the categorisation table. Before hypothesis testing, a linearity test was conducted to ensure the relationship between the variables was linear. Hypothesis testing in this study employed Pearson's Product-Moment correlation analysis using a simple linear regression approach in IBM SPSS Statistics version 22. The F-test was used to assess the significance of the independent variable's effect on the dependent variable. In contrast, the coefficient of determination (R-squared) was used to quantify the magnitude of self-control's contribution to smartphone addiction levels.

2.5 Research Procedure

The research procedure began with the development of research instruments based on theoretical frameworks and predetermined variable dimensions. Subsequently, instrument validity and reliability were assessed using Pearson's Correlation and Cronbach's alpha in IBM SPSS Statistics version 22. After the instruments were declared valid and reliable, the researcher determined the sample using the cluster sampling technique and the Slovin formula. The next stage involved data collection through the distribution of questionnaires to 100 students from seven public vocational high schools in Ciamis Regency. The collected data were then processed using descriptive analysis to identify the characteristics of each variable, followed by simple linear regression analysis to evaluate the influence of self-control on smartphone addiction levels. The analysis results were used to answer the research questions and to formulate the study's conclusions.

3. RESULTS AND DISCUSSION

3.1 Results

Based on the descriptive analysis of 100 participants from seven public vocational high schools in Ciamis Regency, the self-control variable had a minimum score of 91, a maximum of 157, a mean of 128, and a standard deviation of 14. Meanwhile, the smartphone addiction variable had a minimum score of 89, a maximum score of 152, a mean score of 113, and a standard deviation of 11.

Table 1. Descriptive Data of the Self-Control Variable

No	Score Range	Category	Frequency (F)	Percentage (%)
1	148-222	High	8	8%
2	73-147	Moderate	92	92%
3	43-72	Low	0	0%

Based on the descriptive data of the self-control variable above, 8 students (8%) were categorized as having a high level of self-control. This indicates that these students were able to make decisions consciously and responsibly. Values, goals, and long-term consequences generally guided their actions. Students in this category were better able to prioritise academic and social responsibilities over momentary desires. Meanwhile, 92 students (92%) were categorised as having a moderate level of self-control. This finding suggests that most students made fairly rational decisions, though transient emotions or environmental pressures occasionally influenced their choices. No students were classified in the low self-control category.

Table 2. Descriptive Data of the Smartphone Addiction Variable

No	Score Range	Category	Frequency (F)	Percentage (%)
1	152-228	High	1	1%
2	75-151	Moderate	99	99%
3	0-74	Low	0	0%

Based on the descriptive data for the smartphone addiction variable above, most students were classified as moderate. A total of 99 students (99%) fell into this category, indicating that the majority demonstrated relatively high smartphone usage tendencies, although their behaviour had not yet reached an addictive level. Students in this category sometimes experienced difficulty controlling smartphone use, particularly during leisure time or when experiencing stress. Nevertheless, they were still able to limit smartphone use when faced with academic demands or specific regulations, although not consistently. In the high category, 1 student (1%) demonstrated a strong level of smartphone dependency. This student tended to use smartphones excessively and found it difficult to control usage despite being aware of the negative consequences. Meanwhile, no students were categorised as having a low level of smartphone addiction.

Table 3. Results of the Simple Linear Regression Test

Model	Coefficients ^a				Collinearity Statistics		
	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Tolerance	VIF
1 (Constant)	84,806	9,946	,273	8,527	,000	1,000	1,000
Kontrol Diri	,217	,077		2,808	,006		

a. Dependent Variable: smartphone addiction

The results of the simple linear regression test presented in Table 3 indicate that self-control has a significant effect on smartphone addiction among students of public vocational high schools in Ciamis Regency. This is evidenced by the significance value of 0.006, which is lower than 0.05 ($p < 0.05$), indicating that the research hypothesis was accepted. The regression coefficient value of 0.217 demonstrates a relationship between self-control and smartphone addiction. These findings suggest that higher levels of self-control are associated with lower tendencies toward smartphone addiction among students. Furthermore, the coefficient of determination (R Square) of 0.074 indicates that self-control accounts for 7.4% of the variance in smartphone addiction. In comparison, the remaining 92.6% is influenced by other factors outside the scope of this study, such as emotional regulation, social environment, academic stress, social media usage patterns, and other psychological factors.

3.2. Discussion

The findings of this study indicate that students' self-control and smartphone addiction levels were generally in the moderate category. The results of the simple linear regression analysis further revealed that self-control had a negative and significant effect on smartphone addiction, meaning that higher levels of self-control were associated with lower tendencies toward smartphone addiction. These findings support the research hypothesis and strengthen the conceptual framework underlying this study.

The findings are consistent with self-regulation theory, which holds that self-control is an individual's ability to regulate impulses, emotions, and behaviour to achieve long-term goals. Roy Baumeister and colleagues argue that failures in self-control may lead to impulsive and addictive behaviours. In the context of smartphone use, individuals with low self-control tend to struggle to delay gratification in response to notifications, social media, and online games. In contrast, those with higher self-control are generally better at managing screen time and considering the academic and social consequences of excessive smartphone use. Previous studies have also shown that individuals with strong self-control demonstrate better psychological adjustment and lower involvement in problematic behaviours. Therefore, self-control can function as a protective mechanism against compulsive digital behaviour and smartphone addiction.

The results of this study are also in line with previous empirical findings reporting a negative relationship between self-control and problematic smartphone use. Prior research has consistently demonstrated that self-control is a significant predictor of smartphone addiction among adolescents and university students. Meta-analytic evidence further confirms that self-control is negatively associated with various forms of digital addiction, including internet addiction and social media addiction. The consistency of these findings across different cultural and educational contexts indicates that self-control plays a stable and universal role in reducing addictive technology-related behaviours.

This study additionally revealed that self-control contributed 7.4% to smartphone addiction, while other factors outside the scope of this study influenced the remaining variance. These findings support the Interaction of Person-Affect-Cognition-Execution (I-PACE) model proposed by Matthias Brand, which posits that behavioural addiction emerges from the interaction among personal, affective, cognitive, and environmental factors. Thus, although self-control is an important predictor of smartphone addiction, it is not the sole determinant. Other variables such as emotional regulation, social environment, academic stress, family dynamics, and patterns of social media use may also influence adolescents' addictive smartphone behaviour.

Among vocational high school students, smartphones serve not only as entertainment devices but also as tools for learning, communication, and vocational activities. However, excessive smartphone use may also be associated with academic stress, emotional dysregulation, and reduced well-being among adolescents. High levels of screen exposure have been linked to difficulties in emotional regulation and increased dependency on digital devices. These conditions suggest that adolescents with lower self-control may be more likely to use smartphones as a maladaptive coping mechanism to deal with stress, boredom, or emotional discomfort.

The finding that most students were categorised at moderate levels of both self-control and smartphone addiction suggests the potential effectiveness of preventive interventions. Since students had not yet reached severe levels of addiction, strengthening self-control skills may help prevent the escalation of problematic smartphone use. In the context of guidance and counselling services, self-control enhancement programs may include time-management training, self-monitoring techniques, and Cognitive Behavioural Therapy (CBT)-based interventions focused on cognitive restructuring and behavioural regulation. Previous studies have shown that self-regulation-based interventions are effective in reducing problematic smartphone use among adolescents.

Overall, this study reinforces the existing literature that identifies self-control as a protective factor against smartphone addiction among adolescents. The significant negative relationship between self-control and smartphone addiction indicates that improving self-regulation abilities can serve as an important strategy for preventing digital addiction. These findings are not only theoretically relevant within the framework of self-regulation theory but also practically valuable for the development of guidance and counselling services in vocational high schools aimed at promoting healthier and more responsible technology use among adolescents.

4. RESEARCH IMPLICATIONS

The findings of this study have important practical implications for school guidance and counselling services, particularly in efforts to prevent smartphone addiction among adolescents. The results indicate that self-control plays a significant role in reducing the tendency toward smartphone addiction, suggesting that strengthening students' self-regulation should be a major focus of school counselling programs. Guidance and counselling teachers may develop preventive services through classroom guidance, individual counselling, and self-control training programs that help students manage smartphone use in healthier, more adaptive, and more responsible ways. In addition, schools are encouraged to create educational environments that promote balanced technology use so that smartphone usage does not interfere with students' academic, social, and emotional development.

From a theoretical perspective, this study strengthens the self-regulation framework, which explains that self-control is closely related to technology-based addictive behaviour. The findings support previous theories and empirical studies suggesting that individuals with stronger self-regulation abilities are better able to control impulsive behaviour and manage digital technology use effectively. Furthermore, this study contributes to the guidance and counselling literature by emphasising the role of self-control as a protective factor against smartphone addiction among vocational high school students. The findings also serve as a reference for future studies investigating psychological, social, and environmental factors related to digital addiction among adolescents.

5. CONCLUSIONS

This study revealed that the levels of self-control and smartphone addiction among students of public vocational high schools in Ciamis Regency were generally in the moderate category. These findings indicate that most students already possess relatively adequate self-regulation abilities to manage their behaviour and smartphone use. However, they may not consistently control the intensity of their smartphone use. Smartphones have become an essential part of adolescents' daily lives, functioning not only as communication tools but also as sources of entertainment and educational support. Consequently, high levels of smartphone use may increase the risk of addictive behaviour when not accompanied by effective self-control.

The results of the simple linear regression analysis demonstrated that self-control had a negative and significant effect on smartphone addiction. This finding suggests that students with higher self-control tend to have lower levels of smartphone addiction. In contrast, lower self-control may increase the likelihood of excessive and uncontrolled smartphone use. These findings reinforce self-regulation theory, which emphasises the importance of individuals' ability to control impulses, emotions, and behaviour in preventing addictive tendencies, including technology-based addiction.

This study confirms that self-control functions as an important protective factor against smartphone addiction among adolescents. Strengthening self-regulation abilities may help students manage smartphone use more responsibly, consider the consequences of their behaviour, and develop healthier digital habits. Therefore, self-control should be considered an essential aspect of educational and counselling interventions aimed at supporting adolescents' academic, social, and emotional development in the digital era.

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AUTHOR CONTRIBUTION STATEMENT

The author was fully responsible for the entire research process, including formulating the research problem, conducting the literature review, designing the study, collecting and analysing the data, interpreting the findings, drawing conclusions and recommendations, and preparing the manuscript. All contributions were carried out independently with support and collaboration from co-authors during the manuscript preparation process.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this study.

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