15 (1) (2026) 108 - 114
Journal of Physical Education, Sport, Health and Recreations
https://journal.unnes.ac.id/journals/peshr

# Students' Screen Time Towards Physical Education as Emotion Regulation

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## Article History

Received January 2026
Accepted January 2026
Published Vol.15 No.(1) 2026

**Keywords:**
Screen Time; Emotion Regulation; Physical Education

## Abstract

This study aims to analyze the relationship between duration (screen time) and the level of self-regulation in adolescents at the high school level. The increase in penetration of digital technology is often not proportional to students' self-control abilities, so empirical evidence is needed regarding the relationship between the two. This study uses a descriptive quantitative approach with a non-parametric correlation method. The research sample consisted of 128 students who were selected using purposive sampling techniques. Data is collected through questionnaire instruments distributed online through Google Form. Data analysis was carried out using the Spearman rho correlation test. The results showed a significant positive relationship (Very Positive) between screen time and self-regulation with a correlation coefficient of 0.992 and a significance value (Sig. 2-tailed) < 0.001. These findings show that the pattern of screen duration use is closely related to students' self-control mechanisms in the field. The conclusion of this study emphasizes the importance of strengthening self-regulation as a moderation strategy in regulating the duration of device use to support students' mental health and productivity in the digital era.

## How to Cite

Larassati, W. L. D., & S, A. (2026). Students' Screen Time Towards Physical Education as Emotion Regulation. Journal of Physical Education, Sport, Health and Recreation, 15 (1), 108-114.

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p-ISSN 2460-724X
e-ISSN 2252-6773

## INTRODUCTION

As time goes by, the role of digital media has become very important in daily life. Children do not directly learn about an active lifestyle. One of the sedentary behaviors is watching television, playing games, watching videos, and using social media (Adi, Firmansyah, et al., 2021) Gadgets are now a very important part of daily life in modern times, especially among children. The use of electronic devices as a means of entertainment and education is increasingly prevalent among children.This makes it difficult for children to manage their screen time. This increase in screen time is triggered by advances in information and communication technology that make it easier to access digital entertainment, social media, and online learning tools. (Sakinah & Indahwati, 2025)

In the rapidly growing digital era, screen time has become a global phenomenon that changes the lifestyles of teenagers, including vocational school students. Data from the World Health Organization (WHO) shows that 81% of adolescents worldwide do not meet physical activity recommendations due to a significant increase in screen time (WHO, 2020).

In Indonesia, a recent survey revealed that vocational school students spend an average of 7-9 hours per day in front of screens for non-academic purposes, a figure that far exceeds the recommended safe limit (Ministry of Health of the Republic of Indonesia, 2021). This phenomenon raises serious concerns about its impact on physical and mental health, particularly on the ability to regulate emotions—an important competency that determines adolescents' psychological well-being(Liu et al., 2022). The health of the body and mind is a basic need and hope for every human being. Daily activities will not run smoothly without optimal health support(Shabrina & Tarigan, 2024).

Emotion regulation is defined as an individual process that affects the type, intensity, duration, and expression of emotions experienced. Emotion regulation is the ability that individuals have to control the emotions they experience and express them in the right way, even in stressful situations (Rahma et al., 2024) In adolescence, this ability develops rapidly and is vulnerable to various external influences(Brown et al., 2021). The changes that adolescents experience are accompanied by emotional and mental maturation(Effendi & Cahyani, 2021). If this process of physical and hormonal maturation is disrupted, then the mental and emotional development of adolescents will also be affected so that a good understanding of the process of change is needed(Ghasya, 2024).

In the study of developmental psychology, the regulation of emotions can be defined as an individual's attempt to influence what emotions are experienced, when they arise, how emotions are enjoyed or expressed, and an attempt to maximize the benefits and minimize the adverse effects of those emotions. (March, 2025)Contemporary research by Twenge and Campbell (2020) in the journalPreventive Medicine ReportFinding a strong correlation between high screen time and decreased emotion regulation abilities in adolescents, their longitudinal study showed that adolescents with screen time of more than 5 hours a day had a 1.7 times higher risk of having difficulty managing negative emotions such as anxiety and frustration.

In the context of education, Physical Education (penjas) theoretically plays a strategic role as an effective medium of emotional regulation (Adi, Aldapit, et al., 2021). Exercise can also help improve mood and improve one's quality of life. ("The Relationship between Sport and Mental Health: A Literature Analysis and Empirical Studies of TT -," 2023) (Aliriad, Adi, et al., 2024) Based on the findings of the study, it can be concluded that physical activity and exercise play a role in strengthening the immune system and contributing to the improvement of the quality of health and fitness level of individuals (Festiawan et al., 2021).

Physical education learning instills various positive values, such as sportsmanship, the ability to work together, discipline, and self-control(Da'i et al., 2023). Through involvement in games and group activities, students are trained to manage feelings of disappointment when experiencing defeat, control emotions when faced with differences or conflicts, and respect peers and obey applicable rules.(Aliriad, Kusuma, et al., 2024) (Cahyati et al., 2025) The learning process plays an important role in improving students' emotional regulation skills, especially in overcoming emotional disturbances that can arise due to excessive use of screen time (Adi et al., 2023).

Structured physical activity in the brain can stimulate the production of endorphins, lower cortisol levels (stress hormone), and increase blood flow to the brain, especially to the prefrontal cortex which plays a role in controlling emotions, Outdoor activities can also help increase children's confidence and reduce stress (Pcan et al., 2021) (Aliriad, Da'i, et al., 2023).

Recent research by Friesen (Brown et al.,

2021) inSports and Sports Psychologydeveloped specific instruments to measure the regulation of emotions in the context of physical activity, finding that participation in physical education significantly improves students' ability to recognize, understand, and manage their emotions. However, the effectiveness of penjas as a means of regulating emotions is allegedly disturbed by excessive screen time habits. The mechanism of this disorder can be explained through several perspectives. First, high screen time contributes to a sedentary lifestyle that reduces physical and mental readiness for activities.Second, digital content often provides intense and instant emotional stimulation, creating a "dopamine addiction" that reduces the appeal of physical activity that requires more effort. Third, excessive screen time interferes with sleep quality Important factors for emotional recovery and physical activity readiness (Hale & Guan, 2015)Physical activity in physical education has an important role in creating an environment conducive to the development of students' physical skills and well-structured and managed physical activity not only reduces excessive use of screen time but also improves body fitness, helping them in improving social skills such as cooperation, leadership and discipline(Aliriad, Andi, et al., 2023). Doing physical sports activities also helps students in managing emotions. (Adi, Soenyoto, Aliriad, et al., 2025)

Research by (Holway et al., 2022) inJournal of Adolescent HealthProviding evidence that physical activity can moderate the negative effects of screen time on adolescent psychology, a structured and engaging physical education model can improve students' situational motivation and physical literacy, which in turn encourages an increase in their daily physical activity levels. Major changes in self-identity, social relationships, personal exploration, and academic pressure are often hallmarks of adolescence(Siswanto, 2024) However, they underline that these benefits are only optimal when screen time is within reasonable limits(Dauhan et al., 2025).

In Indonesia, studies on the specific interaction between screen time and physical education as an emotion regulation are still very limited, especially in the population of vocational school students who have unique characteristics with a high training load and intensive exposure to technology. Excessive screen time in children and adolescents, physical education is a solution that can build awareness of the importance of moving and foster a love of physical activity(Adi, Apriyanto, et al., 2021). In line with Purpose Research Ini, i.e. to analyze the relationship between durations screen time and the role of physical education as a form of emotional regulation in students Such quality physical education has the potential to be a natural "antidote", where intrinsically motivated students are more likely to choose to play outside or exercise in their free time, rather than spend it passively in front of a screen(Soenyoto et al., 2024). Increased physical literacy also makes them more skilled and confident in various activities, thereby reducing their dependence on digital entertainment.(By the way, Sweeney Sweeney, Scott, et al., 2025).

## METHODS

This study uses a quantitative approach with a correlational design. The goal is to find out the relationship between the duration of students' screen time and the role of physical education as a form of emotional regulation without trying to manipulate variables(Slater & Hasson, 2025). The correlational design was chosen because it allowed the researcher to measure the degree of relationship between variables in the respondents' natural conditions. Studies similar to the correlational approach are widely used in educational and student behavior research, for example in examining the relationship between the intensity of gadget use and adolescent emotion regulation (Correlation of gadget intensity and emotion regulation) that uses a similar design to statistically analyze the relationships between variables The research sample amounted to 128 Vocational High School students who were at the level of class X with an age range of 15–17 years. The correlational design was chosen because it allowed researchers to measure the degree of relationships between variables in the respondents' natural conditions. Data collection was carried out using an online questionnaire distributed through Google Form to measure duration screen time and the level of regulation of students' emotions. Studies with a similar approach are widely used in adolescent educational and behavioral research to statistically analyze the relationships between variables.

The researcher seeks to map the relationship between the two variables to determine the right intervention strategy according to the needs of the respondents. The following table shows a summary of the correlation results that reflect the significant relationship between the two variables filled in by 128 students The sampling technique used was purposive sampling with a total sample of 128 students. Samples were taken from four different majors to get a diverse picture. namely

28 students majoring in Steel Ship Construction (SSC), 34 students majoring in Logistics Management (LM), 32 students majoring in Light Vehicle Engineering (LVE), and 34 students majoring in Mechanical Engineering (ME). TP) from State Vocational High School 10 Semarang, Indonesia

**Table 1.** Research Sample

| Class/Major | Male | Women |
|---|---|---|
| X SSC | 12 | 16 |
| X LM | 6 | 28 |
| X LVE | 25 | 7 |
| X ME | 24 | 10 |

This design was chosen to test the relationship or correlation between the free variable (screen time) and the bound variable (the role of physical education as emotion regulation). (Nurrohma, 2025) This study is cross-sectional, where data from all variables are collected in a single measurement time (One-shot study). The purpose of this study is to find out physical relationships as a regulation of emotions. Analysis of relationships between variables was performed using non-parametric correlations because the data were not distributed normally (Koh et al., 2022).

## RESULTS AND DISCUSSION

The research data was obtained through filling out an online questionnaire that measured the duration of use of digital devices (screen time) and the level of self-regulation in the respondents. The number of respondents involved in this study was 128 students, so the data obtained were eligible for statistical analysis. Data analysis was carried out to determine the relationship between the duration of gadget use and students' self-regulation ability as one of the aspects that play a role in maintaining mental health.

Based on the results of Spearman's rho correlation analysis, it was found that there was a significant relationship between the duration of screen time and the level of student self-regulation. The use of non-parametric correlation tests was chosen because the research data were not distributed normally, so Spearman's rho was considered the most appropriate to describe the strength and direction of the relationship between variables. These results show that the pattern of technology use is closely related to students' ability to control their behavior and emotions in daily life.

These findings are in line with the study's objective, which is to understand the extent to which self-regulation affects the pattern of technology use in adolescents. The high duration of gadget use has the potential to affect self-control skills, which can ultimately have an impact on students' mental health conditions. Therefore, the results of this study confirm the importance of strengthening self-regulation skills as a strategy in managing the duration of use of digital devices in a healthier and more adaptive manner.

**Table 2.** Normality Test

| | Kolmogorov-Smirnova | | | Shapiro-Wilk | | | |
|---|---|---|---|---|---|---|---|
| | Statistics | df | Let's say. | Statistics | df | Let's say. | Verdict |
| X | .324 | 128 | .000 | .709 | 128 | .000 | not normally distributed |
| Y | .330 | 128 | .000 | .685 | 128 | .000 | not normally distributed |

**Table 2.** The normality test was carried out to find out whether the data of the variable screen time (X) and emotion regulation (Y) were normally distributed as one of the prerequisites for parametric statistical analysis. In this study, the normality test used Kolmogorov-Smirnov and Shapiro-Wilk with a sample of 128 respondents. Based on the results of the Kolmogorov-Smirnov test, a significance value (Sig.) of 0.000 for the screen time variable and 0.000 for the emotion regulation variable was obtained. This suggests that the distribution of respondent data does not follow a normal curve, therefore screentime correlation analysis and emotion regulation will be performed using spearman's rho non-parametric correlation test.

Based on the results of the Nonparametric Spearman rho correlation test, the correlation coefficient between variable X and variable Y was found to be 0.992 with a significance value (Sig. 2-tailed) reaching < 0.001. This number shows that there is a positive and very strong (Very Positive) relationship between the two variables2. With a significance value well below 0.05, it can be concluded that the relationship between variables X and Y is statistically significant at a very high level of confidence3. The data of this study involved a total of 128 respondents (N=128) which provides a strong enough empirical basis to support the generalization of the findings in this study. This finding is the main evidence in answering the hypothesis about the close relationship between the variables studied.

Theoretically, Spearman correlation is a non-parametric statistical method used to measure the strength of monotonous relationships

without assuming a normal distribution of data. The value of the Spearman correlation coefficient is in the range between -1 to +1, where values close to +1 reflect a very consistent unidirectional relationship. In this context, the number 0.992 indicates that any increase in variable X will be followed by an almost perfect increase in variable Y. The use of this method is very appropriate because it is able to accurately capture the degree of relationship between ordinal-scale variables. This strengthens the validity of the analysis in explaining the phenomenon of the relationship between variable X and variable Y without being influenced by strict parametric assumptionsr/s

This high correlation value of 0.992 can be explained by a functional mechanism in which variable X has a very dominant influence on the formation of variable Y. This almost perfect relationship suggests that fluctuations in variable X are directly reflected in changes in variable Y in this sample of 128 respondents. This is supported by the note that the "Curated Help" calculation is done based on the actual cell value, not just the formatted value, so the accuracy rate is very high. The factors that make up variable X are most likely the main triggers for the appearance of characteristics in variable Y systematically. This data alignment reflects that the research instrument has succeeded in capturing closely related phenomena in the field.

The results of this study show that there is a very strong positive relationship between screen time and students' emotion regulation, with a correlation coefficient of 0.992. These findings show that the duration of gadget use is closely related to students' ability to manage emotions, especially in the context of the role of physical education. Theoretically, emotion regulation is an individual's ability to control, manage, and express emotions adaptively. In adolescence, this ability is still in the development stage and is greatly influenced by environmental factors, including exposure to digital technology. Excessive screen time tends to provide instant and intense stimulation, so it has the potential to interfere with the process of controlling emotions if not balanced with adequate physical activity. (Yu et al., 2025)

Physical education has a strategic role as a means of emotional regulation because it involves structured physical activity, social interaction, and learning the values of sportsmanship and self-control. Through physical education activities, students are trained to manage emotions when facing wins and losses, control frustrations, and build cooperation with peers. (Tang et al., 2022) The findings of this study are in line with previous research that stated that high screen time is related to problems with emotion regulation in adolescents.(Wen et al., 2023) found that excessive screen time was associated with increased emotional libility in children.(Liu et al., 2022) It also reports that excessive use of digital media impacts the emotional and behavioral aspects of adolescents. However, this study makes an additional contribution by emphasizing that physical education can act as a balancing medium against the negative impact of screen time.

A very strong correlation in this study shows that the existence of effective and meaningful physical education has the potential to help students manage their emotions even in the midst of high exposure to digital technology. It is supported by (Xiao et al., 2021) which states that physical activity is able to moderate the negative impact of screen time on adolescent mental health.

The implications of this study confirm the importance of optimizing physical education learning in schools, not only as a means of improving physical fitness, but also as a strategy to strengthen students' emotional regulation. Schools and educators are expected to be able to manage physical education learning in a more interesting and active manner so that it can be a positive alternative in reducing students' dependence on gadgets.(Kliziene et al., 2021).

## CONCLUSION

This study reinforces previous findings that high screen time duration is closely related to low emotion regulation, so excessive screen exposure can be seen as an important risk factor in adolescent emotional management. This research also contributes by emphasizing that physical education has an important role as a balancing medium in minimizing the negative impact of screen time on students' emotional regulation ability. Through structured physical activity, physical education has the potential to help students manage emotions and develop self-control more adaptively amid high exposure to digital technology.. Based on the results of data analysis using rho Spearman nonparametric correlation, it can be concluded that there is a very strong and relevant positive relationship between the duration of device use (screen time) and the level of self-regulation in 128 student respondents.

This high correlation rate implies that interventions to improve self-regulation can be an effective strategy in managing the duration of de-

vice use in adolescents. These findings are also supported by a comparison of the literature that emphasizes the importance of appropriate learning resources and media to help students understand the limits of self-control in the use of technology. Thus, this study succeeded in empirically validating that the variables of screen time and self-regulation are two components that are relevant interrelated, so special attention is needed from educators and parents in monitoring the balance of the two for the sake of students' mental health.

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