



The Impact of Gadget Use on the Decrease in Students' Physical Activity in Everyday Life

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Abstract

Digital technology advancement has led to increased gadget usage among elementary school students but their extended screen time and high screen exposure risks transforming their daily activities from active play to sedentary behavior. The research investigates how students' physical activities change when they spend more time using gadgets during their daily routines. The research employed explanatory case study qualitative methods to gather data through structured interviews and direct observations of six students who spent most of their time using gadgets. The research demonstrates that students use gadgets mainly for watching content which creates three main obstacles to their physical activity: decreased motivation and physical abilities and reduced involvement in unstructured physical activities. Students maintain their participation in Physical Education (PE) activities but they now choose to spend their free time watching screens instead of being active. The research demonstrates that the length of time students spend with gadgets determines which activities they perform throughout their day. The research findings help parents and educators and policymakers create effective digital monitoring systems and enhance physical activity opportunities to support children's healthy development in today's digital world.

How to Cite

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INTRODUCTION

Current global developments are marked by the emergence of various technological innovations that are widely used by people around the world. These advances have made human activities easier, one of which is through the use of gadgets that are now used by children, adolescents, adults, and the elderly. The presence of gadgets not only provides convenience in communication but also opens access to various digital features that have the potential to improve the quality of human resources in the era of digital transformation (Laranjo et al., 2020). However, not all individuals are able to utilize this technology optimally and wisely, thus creating new challenges in modern life.

Excessive use of gadgets, especially among children, can have a significant negative impact on their development. High intensity of gadget use affects concentration and fosters dependence in children in completing various activities that should be done independently (Yumarni, 2022). In addition, children often experience disturbances in managing their daily activities due to difficulties in controlling gadget use, such as forgetting study time and reduced direct social interaction. This condition also indirectly affects children's physical habits, because the more time spent in front of screens means fewer opportunities to move, play, and engage in physical activities that support their growth and development. This trend will cause children to spend hours using gadgets, which will certainly have a direct impact on the decline in daily physical activity. Instead of running or completing other basic motor skills outside, kids are now spending more time in front of a screen. This habit of doing the same thing over and over again makes it less likely that you will get better at body coordination, muscle strength, and gross motor abilities, which are all crucial for healthy growth. There is a negative correlation between the duration of device usage among children of all ages and their level of physical activity (Rashid et al., 2021). This has long-term impacts on health, and it also makes it tougher to perform things with other people that need physical exertion, such team sports or traditional games. This means that letting babies use gadgets without enough supervision can hurt the quality of their physical activity, which is particularly crucial for their growth.

Monitoring and controlling are important ways to deal with the bad impacts that gadgets have on kids in elementary school. You can use a digital app to keep an eye on and control what

your kids do online, such as establishing time restrictions and choosing what is suitable (Hidayatullah et al., 2023). Parents and children need to spend a lot of time together and be active with each other. This can help kids learn to be responsible and get them away from their devices and into better physical activities (Hidayatuladkia et al., 2021). Moreover, implementing digital parenting strategies, such as organizing physical activities and engaging children in outdoor pursuits, aids in achieving a balance in gadget usage and fosters children's gross motor development (Sisbintari & Setiawati, 2021).

Other than keeping an eye on technology, giving kids practical advice from their parents has also been shown to help them be more active and social. Parents should help their kids use digital media, while with getting them to be active and giving them good educational information (Tamsil, 2021). Setting explicit guidelines and agreements between parents and kids on how long they can use gadgets can help kids be more active and get more involved with other people (Nugroho et al., 2022). Therefore, the combination of digital supervision, limits on screen time, and regular physical activity is a good way to help primary school students grow and develop in a balanced way.

Previous studies emphasize the role of parents in controlling gadget use and encouraging children's physical activity (Hidayatuladkia et al., 2021; Hidayatullah et al., 2023; Nugroho et al., 2022; Sisbintari & Setiawati, 2021b; Tamsil, 2021), mostly using descriptive or limited observational approaches. Most of these studies have not applied a qualitative case study approach to explore the real interactions between children in their daily gadget use. This study uses an explanatory and in-depth case study to understand these dynamics more fully.

Due to the growing prevalence of gadgets among primary school children, there may be a decrease in their physical activity, motor abilities, and social interactions, underscoring the significance of this research. Prior research has predominantly been descriptive or literature-driven, lacking an examination of the authentic interactions among children in their regular utilization of gadgets. This research employs a qualitative case study methodology to enhance the understanding of gadget management strategies and to generate actionable recommendations for parents, educators, and policymakers aimed at optimally fostering children's physical health and social-emotional development. How might the length and intensity of gadget use impact the dai-

ly lives of kids who used to play sports or games outside?

In view of how digital technology is changing right now, gadgets, smartphones, tablets, and laptops are very vital to kids. This technology makes it easier to get information, talk to people, and have fun. When utilized correctly, digital technology can improve social skills and cognitive capacities (Laranjo et al., 2020). But using it too much can make people less active and change their patterns of physical activity. Technology is typically utilized in school for online learning or homework, but kids also use it for digital fun like games, videos, and social media. So, to figure out how devices affect kids' physical activity, it's crucial to know what kinds of gadgets they are and how often they use them.

An excessive amount of screen time can make kids less active. Kids who spend a lot of time on devices tend to sit still, which means they spend less time playing outside and doing gross motor activities (Rashid et al., 2021). Long periods of screen time for kids are linked to a higher risk of obesity. This shows that more time spent sitting around and less time spent being active are major risk factors for obesity and other health problems (Zhu et al., 2019). Other studies also show that kids who use gadgets too much have trouble sleeping and getting up in the morning, which decreases their energy for exercise.

Children's motor development, physical health, and social skills all benefit from being active every day. To improve their health and lower their chance of becoming overweight or developing health problems, kids and teens should complete at least 60 minutes of moderate to vigorous physical activity every (Tremblay et al., 2016). Playing outside, running, doing mild exercise, or playing traditional games are all good ways to improve gross motor abilities, body coordination, and muscle strength (Yumarni, 2022). Less physical activity might hurt your motor skills, endurance, and long-term health. So, as a starting point for research, it's crucial to know how pupils are active in their daily lives.

Interacting with electronics too much not only makes kids less active, but it also hurts their health and motor skills. Kids that spend more time sitting and watching films or playing electronic games lose muscle strength, bodily coordination, and fitness (Tamsil, 2021). A lot of sitting around can also make you fat, mess up your posture, and put you at risk for metabolic problems from a young age. Motor development hypothesis says that moving around and being active is crucial for the formation of muscles, bones, and the heart

and blood vessels. So, using technology too much can hurt kids' physical growth.

Educational institutions and parents have an important role in controlling how kids use technology and getting them to be more active. Apps like Google Family Link can assist keep an eye on screen usage and block access to information that isn't suitable (Hidayatullah et al., 2023). They also say that when parents are involved in their kids' activities, such playing or watching the television together, it might make kids more responsible when using devices (Hidayatullah et al., 2023). Sisbintari & Setiawati (2021) stress the rules of digital parenting, which include planning physical activities, getting kids involved in outside activities, and limiting screen time. Nugroho et al. (2022) demonstrate that explicit norms and agreements between parents and children enhance physical activity while mitigating the danger of sedentary behavior. This technique emphasizes the necessity of reconciling technology usage with children's physical activity requirements to facilitate healthy growth and development.

The present research was conducted to examine the influence of technology, specifically gadgets, on the reduction of physical activity among elementary school students, attributed to the prevalence of passive entertainment, such as gaming and video consumption, that promotes a sedentary lifestyle. This study seeks to elucidate alterations in children's movement behavior, encompassing diminished engagement in outdoor activities, reduced motivation for physical activity, and a propensity for children to favor sedentary pursuits over active ones. This study also seeks to ascertain the transition of social interactions to the digital realm and to examine how differing levels of support from familial or educational contexts influence the capacity of certain students to maintain activity. Overall, this study aims to provide a comprehensive understanding of the mechanisms of gadget use that influence students' physical habits and the factors that determine their continued engagement in daily physical activity.

The present study elucidates the substitution of spontaneous physical activities with passive digital engagements, particularly games and videos, which have become integral to students' daily routines, thereby contributing a novel avenue for research. This study is different from other studies that looked at how devices affect physical activity. It indicates a shift in children's behavior: they tend to sit for extended periods, engage in outdoor play less frequently, and exhibit diminished interest in physical activity, despite the presence

of organized activities at school. This study also found that social interactions are moving to digital spaces and that the environment plays a big role in whether or not a child stays active. It gives us a new way to think about how devices affect the lives of elementary school students every day.

METHODS

This research employs a qualitative methodology with an explanatory case study design to thoroughly examine the influence of gadget technology utilization on the reduction of students' physical activity. The researchers want to find out how students utilize electronics in their everyday lives and how it affects their physical activity habits. The main idea behind this study is to look at how students' usage of electronics affects their physical activity. The primary aims are to delineate patterns of gadget utilization, comprehend alterations in physical activity behavior, and pinpoint the challenges pupils encounter in sustaining their everyday fitness. Researchers choose a qualitative method because it lets them get a deeper understanding of social phenomena by looking at the background, experiences, and points of view of the people involved (Creswell, 2014).

The subjects of the research were six primary school kids from the Sukatani District, aged 10 to 15 years. The selection of participants was modified to align with the research emphasis on the influence of gadget usage on the reduction of students' physical activity. The criterion for choosing participants included students who exhibited a high frequency of gadget usage for both entertainment and communication, and a comparatively low degree of physical activity in their daily routines. The choice of this age group was predicated on the understanding that children within this demographic are at a critical phase of development for establishing active lifestyle habits and enduring technology usage patterns. So, the chosen participants were supposed to give a whole picture of how people use gadgets and how they affect their regular physical activity.

The above research method was created to gather information on how using gadgets affects students' physical activity levels in their daily lives. This study use instruments derived from research completed by (Iswahyudi, 2021). Structured interview procedures and observations are the tools used to get detailed information on how active pupils are. In this study, the interview has 9 indicators and 9 questions. Most of them are on PE learning and activities that happen outsi-

de of class. The interview questions focused on five key indicators: the frequency of PE learning, the intensity of PE learning, student engagement in learning, the utilization of school break time, and participation in extracurricular activities. Through these interviews, the researchers wanted to find out how the habit of using devices influences how active students are, both in and out of school.

RESULTS AND DISCUSSION

Discussions with six individuals yielded seven axial codes that characterize their patterns of gadget usage and physical activity. Most students use electronics for passive amusement like games, YouTube, and TikTok, but they don't all use them for the same amount of time. People also have various ideas about how using gadgets affects them. Some say they still play outside, while others say they move less because they are too focused on their device screens. Structured physical exercise through PE is still minimal because it only happens once a week. People don't seem to want to play sports outside of school either. Internal reasons, such not being motivated or feeling like you can't do anything, might make it hard to be active. Some kids go outdoors to play during breaks, while others stay in class and are less active. In general, these data indicate how students' daily habits are affected by how they use gadgets, how they see them, how motivated they are, and how many chances they have to be active.



Figure 1. Word Cloud Interview Results.

The word cloud visualization findings demonstrate that terms like "Games," "Gadgets," and "Use" make up the majority of the pattern of gadget usage among primary school children. This suggests that digital gadgets are largely utilized for passive enjoyment. The presence of terms like "Entertainment," "Videos," "YouTube," and "Tiktok" makes it even clearer that students are more likely to be doing things that are fun to look

at than things that are useful. The phrases "Intensity," "Duration," and "Hours" also stand out a lot, showing how important the intensity and duration of screen time are in students' everyday lives. This indication shows that students spend a lot of time using gadgets, which means that how long they spend in front of a screen is one of the key things that affects how they act every day. The terms "Physical," "Extracurricular," and "Recess Activity," which are connected to physical exercise, show the effects of using gadgets. These words are next to negative words like "Lazy," "Rarely," "Little," "Sometimes," and "Never." This trend shows that students don't participate in physical activities very often, whether it's at recess or after school. The usage of the word "lazy" shows that students' motivation has changed, and they are less likely to do physical activities since gadgets make them feel comfortable.

The results of this study show that the amount of time and intensity that kids use gadgets has a big effect on how their daily lives change, especially when it comes to less physical exercise and outside play. The frequency of language related to passive entertainment corresponds with the findings of Sanders et al. (2019), which indicate that unrestricted device usage promotes lethargy and reduces participation in more beneficial activities. The substantial intensity and length of screen time, as shown by the words "Hours" and "Duration," support the claim made by Mine-shita et al. (2021) that extended screen exposure is associated with a heightened risk of sedentary behavior. This is especially true for teens who spend more of their free time on screens than outside. The effect is clear from the kids' answers

in the interviews, which included the words "Rarely," "Little," and "Never" when asked about physical exercise. This supports what Bonn et al. (2021) said: that kids who spend a lot of time in front of screens are less likely to be active, both in school and outside of school. The use of the word "Lazy" signifies a change in conduct that is becoming more and more common. Wang et al. (2022) assert that unregulated gadget usage can reduce students' motivation to participate in physical activities, prompting a preference for the ease of digital entertainment over outdoor games. The frequency and length of gadget use have been shown to change students' daily routines from being active to being inactive. This has led to fewer chances to move around, less social interaction during outdoor games, and less participation in formal physical activities at school. These findings underline the significance of controlling and regulating gadget usage to sustain equilibrium between digital and physical activities.

The **Figure 2** shows the results of the observation, which show that students use gadgets a lot. This is shown by the high percentage of students who rely on daily gadget functions, use them for a long time, and access applications frequently. These results indicate that a significant number of students allocate substantial time to digital devices, reflecting a widespread integration of technology into their daily routines. This concurs with Nandia & Ramdani, (2022), which elucidates that excessive gadget usage may induce dependence and influence students' social behavior and attention, and is corroborated by Rusli et al. (2021), which affirms that elevated digital media consumption frequently results in sedentary

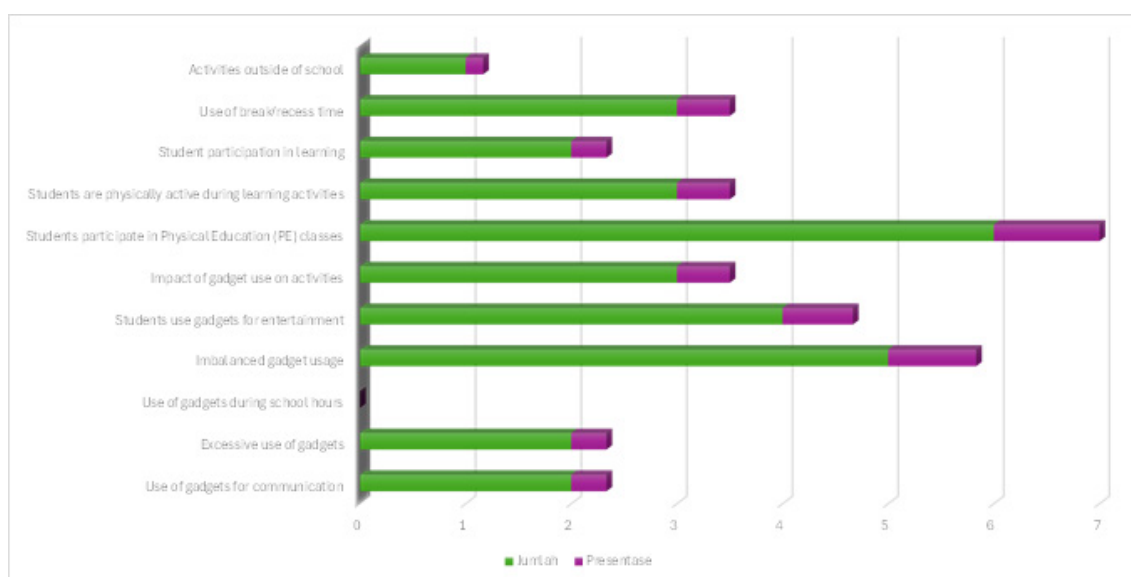


Figure 2. Observation Results.

behaviors. However, a different trend was seen when it came to physical activity. For example, high rates of achievement were seen in sports participation outside of school hours, physical activity while learning, and physical education (PE). This means that even though students are using more gadgets, they are still doing structured physical exercises well at school

The results presented demonstrate that the frequency and length of gadget usage significantly influence alterations in students' daily routines; nevertheless, these modifications predominantly manifest in unstructured physical activities, including outdoor play and spontaneous movement during leisure time. The excessive usage of gadgets takes away some of students' free time and makes them do things that are not very active, such watching movies or playing games. This is in line with what Rusli et al. (2021) found on how digital media use might lead to inactive behavior. Nevertheless, scheduled physical activities, such as school sports and activities during physical education classes, are still being upheld. This is consistent with (O'Brien et al., 2018), which found that gadget use does not necessarily diminish children's physical activity, and Marageta et al. (2023), which elucidates that the use of gadgets for entertainment does not inherently impede participation in formal physical activities. So, the main change that has happened is not that students have lost their ability or desire to be active, but rather that their daily routines have changed. For example, breaks and after-school time that used to be used for outdoor play are now used for sedentary screen-based activities. These results align with the work of Zalal et al., (2023), which underscores the significance of school athletics in preserving children' physical health. So, the amount of time and intensity that kids use gadgets can be considered to have a selective effect on their daily routines, making them less active outside of school but not fully stopping planned physical activity.

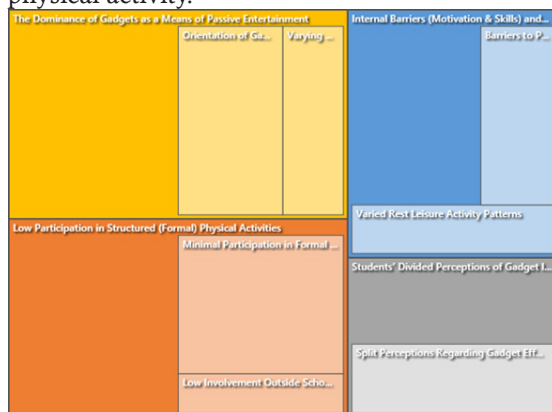


Figure 3. Hierarchy Chart Interview Results.

In relation to the **Figure 3**, the research shows that the main reason students are less active is because they spend too much time on gadgets for passive pleasure. The biggest yellow region shows that most students use gadgets for activities that don't involve much movement, including watching films or playing games. This situation aligns with Silva et al. (2022), which asserts that the utilization of gadgets for passive entertainment may diminish children's engagement in physical activities. The prevalence of sedentary behavior is associated with the development of internal barriers illustrated in the blue area, manifesting as diminished intrinsic drive to engage in physical activity and a decline in physical skills resulting from insufficient exercise. These results align with Jang & Kim, (2025), which elucidates that the intensity of gadget usage can redirect students' motivating emphasis from physical activities necessitating direct engagement to the personal gratification derived from utilizing digital technologies. The effect is evident in the orange area, indicating less student participation in physical activities, both in formal settings like PE and in extracurricular pursuits outside of school. Camp et al. (2024) support this conclusion by stating that too much time spent on gadgets can make it harder for kids to participate in sports. The gray area shows that students have different views on the issue. Some students know that gadgets are bad for their physical health, but they don't modify their habits since they don't know enough about it.

The results show that the amount and length of time teens use gadgets have a big effect on how their daily lives change, especially when it comes to less physical activity and outdoor play. The prevalence of passive entertainment diverts most students' free time from active pursuits to screen-based sedentary activities, aligning with Silva et al. (2022) argument that passive content consumption can impede children's participation in physical activities. The emergence of internal impediments, such as decreased desire and impaired physical capacities, indicates that prolonged gadget usage not only alters activity choices but also reshapes students' behavioral habits and preferences. Jang & Kim, (2025) assert that changes in motivation suggest that greater device usage is linked to a higher probability of students becoming disinterested in physically demanding activities. The resulting effect is demonstrated by reduced participation in both formal and informal physical activities, as observed by Jang & Kim, (2025), suggesting that excessive device exposure may limit sports involvement. Nonetheless, the existence of varied perceptions

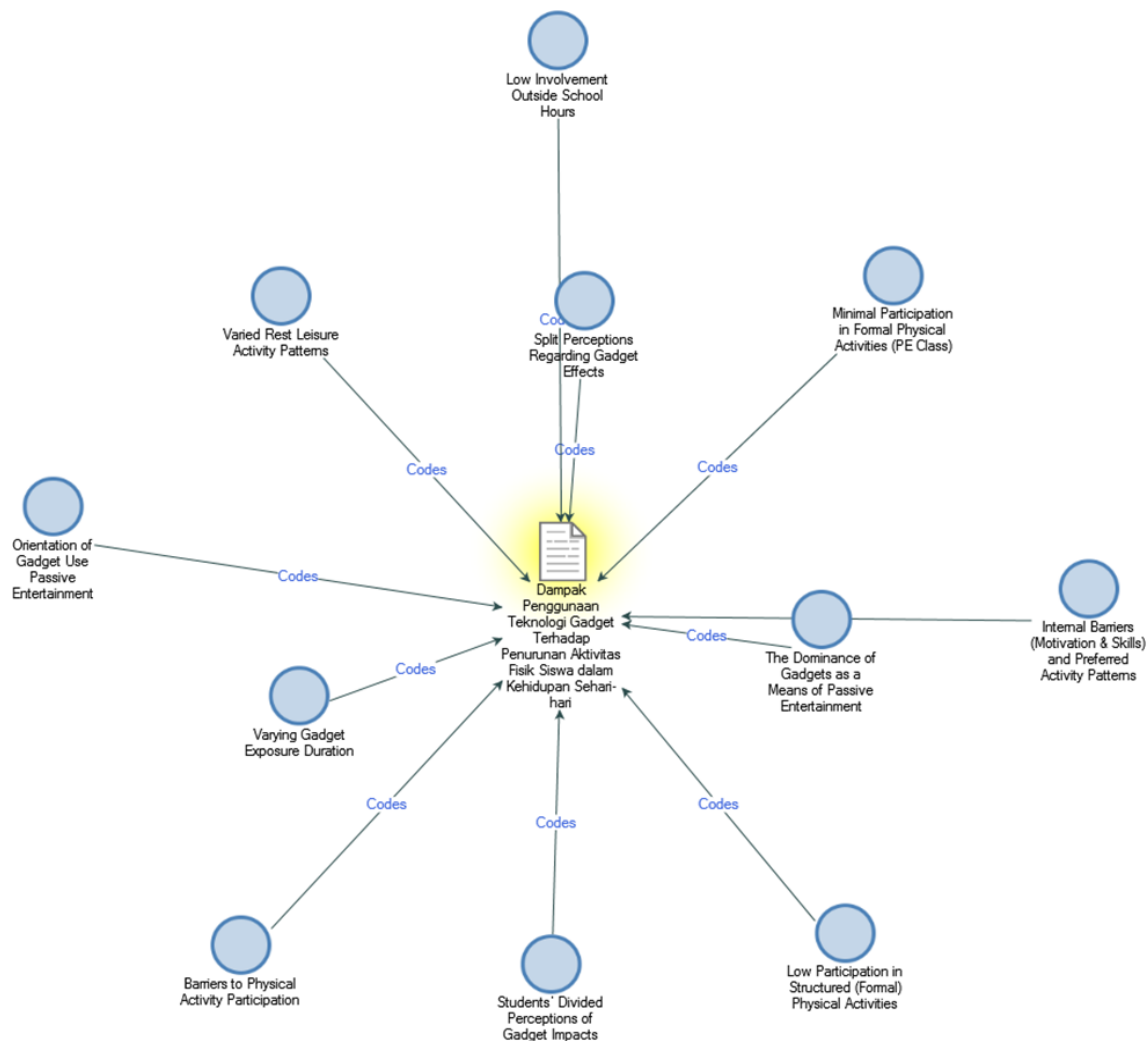


Figure 4. Explore Interview Result Diagram.

indicates that some students are still aware of the importance of physical activity, even though their behavior has not changed. The amount of time and effort students spend using gadgets has been shown to change their daily routines. For example, spontaneous physical activities that used to be common in outdoor games have been replaced by sedentary activities. Organized physical activities still happen, but they aren't enough to make up for the growing passivity of lifestyles.

The **Figure 4** explore diagram visualization shows that the problem starts with the node "The Dominance of Gadgets as a Means of Passive Entertainment." This means that using gadgets as a way to pass the time has taken the place of physical activities that used to be part of students' daily lives. This prevalence of passive entertainment subsequently engenders the emergence of "Internal Barriers," which are psychological impediments characterized by less willingness to engage in physical activity and a

decline in physical competencies resulting from insufficient exercise. These results align with Riciputi et al. (2020), which elucidates that the prevalence of gadgets and insufficient physical exercise can generate psychological obstacles that inhibit students from participating in organized physical activities. The diagram also shows that things like a good environment and chances to be active can help students get over these internal barriers. Virgara et al. (2020) say that giving students chances to be active outside of school hours can help them stop relying on passive gadget-based entertainment. The succession of cause-and-effect linkages leads to minimal student engagement in physical activities, including autonomous activities outside of school (Low Involvement Outside School Hours) and structured programs like PE (Minimal Participation in Formal Physical Activities). The diagram also shows that students have mixed feelings about gadgets, as shown by the node "Split Perceptions Regard-

ing Gadget Effects." This means that even though students know that gadgets are bad for them, they still find it hard to stop using them in a sedentary way. This is similar to what Martins et al. (2021) found about the different internal and external factors that affect children's choices to be physically active.

The findings presented above show that how long and how often kids use gadgets can have a big effect on how they change their daily routines, especially when it comes to replacing physical activities and outdoor games. When electronics are the major source of fun, pupils stop moving, playing, and doing things outside and instead spend their time doing nothing. Digital entertainment is not only taking away time for physical activity, but it is also making pupils less interested in moving by creating mental obstacles. This is in line with the explanation of the ". Long periods of screen time also lower students' intrinsic motivation and make them prefer the comfort of passive entertainment over tasks that require a lot of energy. Nonetheless, the diagram illustrates that opportunities for engagement and environmental support can enhance student participation in physical activity, corroborating the perspective of Virgara et al. (2020) on the necessity of offering structured physical environments and activities to mitigate the prevalence of electronic devices. The uncertainty in students' perspectives suggests that mere awareness is inadequate for behavioral modification; treatments addressing both internal and external barriers are essential, as elucidated by Martins et al., (2021). So, the amount of time and effort children spend using gadgets has changed their daily routines by replacing free physical activities with screen-based sedentary ones. However, participation in structured physical activities still depends on the school's support system and the environment around them.

CONCLUSION

According to the data and discussion, it can be inferred that the frequency and length of gadget use have a big impact on how elementary school pupils adjust their daily routines. The more often and for longer kids use gadgets, the less likely they are to conduct physical activities and outdoor games that used to be a big part of their everyday life. Students are more likely to choose activities that don't need them to move about since they mostly utilize electronics for passive enjoyment, such watching movies, playing games, or using social media. This modification indirectly creates new habits that are less active.

This can lead to reduced physical activity and might damage motor, social, and overall health development. Students need help and more specific rules about how to use gadgets so that they can keep a balance between digital enjoyment and physical activity.

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