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Screen Time Versus Playtime: Correlating Mobile Device Use and Fitness Levels among Grade 11 Students at the University of San Carlos

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ABSTRACT.

The aim of this research was to determine the existence of association between use of mobile devices (screen time) and physical fitness levels of Grade 11 students of University of San Carlos. A quantitative approach of correlational research design was utilized. The data were obtained from 270 participants using a structured questionnaire which included questions related to screen time activities like playing games on the mobile devices, watching movies online, internet browsing, and playtime activities like active play, exercise, and housework activities. Fitness indicators involved in this study included cardiovascular endurance, muscular endurance, flexibility, and body mass index (BMI). For analyzing the collected data, descriptive statistics, independent t-test, one-way ANOVA, and Pearson correlation were applied. It was found that screen-based activities took longer time than the physically active playtime for students. Muscular endurance and flexibility showed positive association with screen time while cardiovascular endurance showed no relationship. These research findings indicated that all types of screen usage did not necessarily correlate with poor levels of fitness; nevertheless, high amounts of sedentary screen usage could lead to unhealthy habits. Thus, this study highlighted the need for an effective balance in one's daily schedule. Using this study as a basis, Mangubat introduced his Balanced Living Program and designed a school-based program encouraging physical activity and good screen practices within the community.

Keywords: Screen time, physical fitness, mobile device use, playtime, Pearson correlation, sedentary behavior, digital wellness

INTRODUCTION

Technology has transformed the learning, communicating, and entertaining aspects in modern times. Among the most prevalent technologies that have taken place are those involving mobile devices such as smartphones and tables. Mobile technology has become crucial in terms of learning and interacting, especially among the adolescent group. There has been a lot of discussion regarding the effect of mobile devices on the health of young people. Hence, this study is rooted in the growing necessity to understand the impact of screen-based activities towards the physical fitness levels of young adults including students.

This is especially true that the instant access to entertainment, social media, and information brought by the rise of mobile devices has led many adolescents to spend a significant amount of time in front of screens. Several local and international studies have reported that teenagers spend an average of four to eight hours per day on screens, not including time used for school-related tasks. However, despite the numerous advantages that the use of mobile phones has brought about in various disciplines, excessive mobile phone use leads to a sedentary lifestyle, which consequently affects the fitness of individuals negatively (Twenge et al., 2019). Moreover, based on the World Health Organization, physical exercises are extremely crucial in ensuring good health among young individuals because physical inactivity is a major cause of mortality worldwide.

The use of mobile devices in general has seen a notable rise in the Philippines among students enrolled in Grade 11. The said trend is largely a consequence of the shift to e-learning during the coronavirus disease 2019 (COVID-19) pandemic, where greater dependence is placed upon digital tools. Despite returning to in-person or blended learning methods in schools, students continue to be heavy users of mobile devices. Nevertheless, little research can be found about the relationship between the trend and their physical fitness status. Thus, there is a specific gap in literature that can help in creating health-related programming. This represents one of the objectives of the present study.

In this study, Grade 11 students in the USC campus were used as subjects because they were in a critical developmental period where both physical and psychological changes took place. At this stage in their lives when they were making an adjustment to

adulthood, whatever practices they engaged in during this period such as health behavior could impact them later in life. With the increasing use of gadgets among the youth, it was necessary to study the relationship between physical fitness and the use of screens.

Physical fitness played an important role in ensuring the overall well-being of students. This referred to body composition, flexibility, muscular endurance, and cardiovascular endurance. They not only helped improve one's mental health but also promoted academic performance and general quality of life. Research showed that the use of screens was very risky to health because it encouraged an inactive way of living, causing weight gain, bad posture, and several health conditions like type 2 diabetes and hypertension (Saunders et al., 2020; Twenge & Campbell, 2018).

Nonetheless, it should be noted that all individuals did not utilize mobile phones equally. For instance, certain forms of screen usage might have had positive health impacts, like fitness tracker apps or participating in exercise classes. However, this investigation only considered passive screen usage, where one spent a lot of time on social networking platforms or consuming streamed entertainment material. As a result, this investigation sought to establish whether there was a correlation between the specified form of screen usage and physical fitness among Grade 11 pupils.

A descriptive correlational framework was used in this study to identify the connection between the two principal variables under consideration, i.e., screen use and physical fitness. The participants filled out a questionnaire assessing the degree of their sedentary conduct on the screens. In addition, fitness assessments were conducted. Thus, the study sought to discover whether there was any correlation between high screen use and low fitness levels.

The current research could be considered relevant to today's times especially in this era of post-pandemic life when online education and interaction had become common practices. These new habits of lifestyle have changed the routines of students, which could lead to increased sedentary behaviors. The current study was conducted based on the observations of the researcher during PE classes.

Thus, this led to the following questions: Did these habits create a decline in the students' fitness levels? Did the increased use of screens lead to a more sedentary generation?

The current study, through a school in Cebu, offered a localized dataset on an already studied area, as it was typically concentrated among younger individuals and those abroad. The results of the study had practical application, as they could be useful in developing better school policies and increasing parental knowledge, as well as other public health programs aimed at raising healthy and physically active individuals. Following the national initiative launched by Department of Education, Commission on Higher Education, and Department of Health in the Philippines, the present study aimed to provide scientifically based insights regarding the need for healthy balance between technology usage and physical activity.

Overall, this study intended to lay down the groundwork for future research in relation to factors such as mental health, sleeping habits, academic achievement, and behavior among others. This study was expected to motivate researchers to conduct similar research in other regions or other types of institutions, which would make the findings of the study more relevant. The hope of this study was to create awareness about healthy use of digital technology and encourage students to develop healthy digital practices.

Conceptual Framework

This research used behavior patterns observed through the implementation of distant learning in accordance with the guidelines set out by Department of Education Memorandum CI 2020-00162, in which the deployment of technological means for learning was encouraged to help schools cope with the coronavirus disease. While it was true that many schools had already switched to face-to-face or hybrid learning programs, the use of mobile phones continued to be a common practice among Grade 11 learners for both academic and nonacademic reasons (Bernardo et al., 2021; Santos & Salazar, 2023).

Moreover, the continued reliance on mobile phones during distance learning highlighted both opportunities and challenges in students' learning behaviors. Mobile devices enabled learners to access learning materials, communicate with teachers, and participate in online activities despite limitations in infrastructure and resources. At the same time, excessive and unregulated use of mobile phones posed distractions that potentially affected students' focus, self-regulation, and academic performance. These behavior patterns underscored the need for guided digital literacy, clear usage policies, and consistent monitoring from teachers and parents. Understanding how students balanced academic and nonacademic use of mobile phones during distance learning provided valuable insights into learner engagement and adaptability in technology-mediated education environments.

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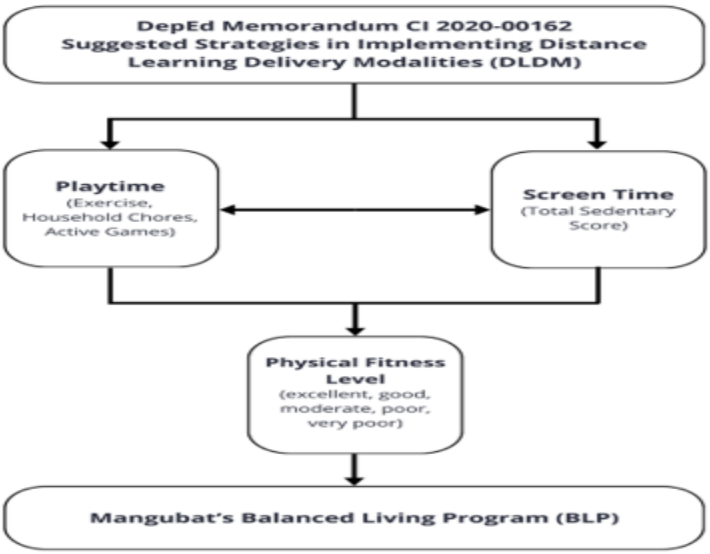
Figure 1

Schematic Diagram of the Conceptual Framework of the Study



The conceptual framework of the study illustrates the relationship between mobile device use, physical activity, and physical fitness levels of Grade 11 students. It is grounded on the assumption that students' lifestyle behaviors, particularly screen time and playtime, significantly affect their overall physical fitness. The framework highlights four key components: playtime, screen time, physical fitness level, and the balanced living program.

Playtime refers to the time students spend engaging in physical activities such as sports, recreational play, exercise, and household chores. Adolescence is considered a critical period for establishing lifelong health habits, and regular physical activity during this stage contributes to healthy growth and development (Strong et al., 2005). In this study, playtime represents the active behavior that positively influences students' physical fitness and helps counterbalance sedentary routines.

Screen time encompasses the duration students spend using mobile phones for sedentary activities such as gaming, watching videos, and accessing social media. While mobile devices are useful for academic tasks and communication, excessive and unregulated screen time has been associated with increased sedentary behavior and reduced physical activity, which may adversely affect physical health (World Health Organization, 2020). Within the framework, screen time is viewed as a behavioral factor that may negatively influence physical fitness when it outweighs active movement.

The physical fitness level represents the outcome variable of the study. It includes measurable indicators of physical health such as body composition, including body mass index, cardiovascular endurance, muscular strength, and flexibility. These components provide an objective assessment of students' physical condition and are commonly evaluated through standardized fitness tests (Caspersen et al., 1985). The framework assumes that variations in playtime and screen time directly influence these fitness indicators.

The balanced living program serves as the integrative and applied component of the framework. Drawing from the relationships among playtime, screen time, and physical fitness, the study seeks to determine whether there is a need for targeted school-based or home-based interventions that promote healthier lifestyle behaviors. The program emphasizes achieving a balance between technology use and physical activity through guided digital literacy, structured physical activities, and supportive monitoring by teachers and parents.

Overall, the conceptual framework provides a systematic representation of how behavioral patterns associated with mobile phone use and physical activity interact to influence the physical fitness of Grade 11 students at the University of San Carlos – North Campus. It also serves as a guide in analyzing the data and formulating evidence-based recommendations to promote holistic student well-being in technology-driven learning environments.

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REVIEW OF RELATED LITERATURE AND STUDIES

This section presents a review of related literature and studies relevant to sedentary behavior, screen time, mobile device usage, playtime, and physical fitness among adolescents. The purpose of this review is to establish a theoretical and empirical foundation for the present study by examining existing research that explains how technology-related behaviors and physical activity patterns influence the physical fitness of young adults. The reviewed literature highlights the growing concern over increased screen exposure and reduced physical activity, particularly among secondary-level students in technology-mediated learning environments.

Sedentary Behavior. Sedentary behavior refers to reclining, sitting, or lying postures characterized by an energy expenditure of less than or equal to 1.5 metabolic equivalents while in a waking state. One of the primary determinants of sedentary behavior among adolescents is increased screen time, largely driven by internet use and advances in media technology. With mobile internet and digital media becoming integral to daily life, adolescents tend to spend more time engaged in screen-based, sedentary activities rather than participating in outdoor play, sports, or other forms of physical activity.

Previous studies have shown that excessive screen time is associated with poor physical and psychological well-being. Rocka et al. (2022) reported that prolonged sedentary behavior increases the risk of physical inactivity and negative mental health outcomes among adolescents. Consequently, research examining the relationship between mobile phone use and physical activity has become increasingly significant. Recent studies have consistently found a significant inverse relationship between screen time and physical fitness, suggesting that as screen time increases, physical fitness levels decline.

Screen Time Among Adolescents. The widespread availability of electronic devices has led to increased screen exposure among adolescents, resulting in various health concerns. Bai et al. (2016) found that adolescents who spent extended periods engaged in screen-based activities were more likely to be overweight or obese. Similar findings were documented by Nagata et al. (2023), who reported that high screen time combined with low physical activity contributed to higher body mass index among adolescents in the United States.

High levels of screen time are closely associated with sedentary behavior, which in turn negatively affects physical fitness. Tremblay et al. (2017) found that increased screen exposure was linked to reduced participation in physical activities, a finding supported by Stiglic and Viner (2019). These studies collectively emphasize that excessive screen time not only limits physical movement but also compromises overall fitness levels during adolescence.

Mobile Device Usage. Mobile devices such as smartphones and tablets have become increasingly prevalent among adolescents and are major contributors to prolonged screen time. A study conducted in Sweden revealed a moderate inverse relationship between smartphone and tablet use and daily step count among adolescents, indicating that higher device usage is associated with lower levels of physical activity (Acta Paediatrica, 2019). The convenience and accessibility of mobile devices encourage prolonged sedentary behavior, which may negatively affect physical fitness and overall health.

Furthermore, Bai et al. (2016) emphasized that increased mobile device use contributes to reduced physical activity and heightened sedentary patterns, reinforcing concerns regarding the long-term health effects of excessive screen exposure among young adults.

Playtime. In this study, playtime is defined as the time students spend participating in activities that involve physical movement and increased energy expenditure, such as active play, exercise, walking, sports participation, and household chores. This definition is consistent with the World Health Organization's (2020) description of physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure and occurs during work, leisure, household activities, or travel.

Active play is described as a freely chosen or spontaneous form of physical activity involving gross motor movement and meaningful energy expenditure (Truelove et al., 2017). Similarly, Brockman et al. (2011) defined active play as any playful physical activity performed above resting metabolic levels. In this study, playtime encompasses both structured and unstructured activities, whether performed during leisure, daily routines, or household responsibilities.

Play also includes unstructured physical activity that is essential for the physical and psychological development of adolescents. According to *Time* (2015), incorporating play into learning experiences enhances creativity and motivation. However, increasing academic pressure and screen-based entertainment often reduce playtime, which may negatively affect adolescents' physical fitness levels.

Supporting this view, Saunders et al. (2020) found that adolescents who engaged in at least 60 minutes of moderate to vigorous physical activity daily exhibited better physical and psychological health than those who spent most of their time on screens. Likewise, LeBlanc et al. (2015) reported that reduced screen time combined with increased active play led to improved physical fitness outcomes.

Physical Fitness. Physical fitness is a fundamental component of overall health and includes flexibility, muscular strength, and aerobic capacity. High levels of physical fitness are associated with better physical and mental health outcomes. Findings published in *JAMA Pediatrics* (2023) indicated that adolescents with higher fitness levels were less likely to experience mental health concerns such as depression and anxiety. Additionally, regular physical activity promotes positive social development and improved academic performance (Bai et al., 2016).

Conversely, physical inactivity is associated with numerous adverse outcomes, including reduced physical fitness and increased health risks. Based on the reviewed literature, excessive screen time and mobile phone use are linked to reduced physical activity, which ultimately affects physical fitness. These findings support the assumption that balancing screen use with regular physical activity is essential in maintaining optimal physical fitness among adolescents.

METHODOLOGY

Method

For this study, a descriptive-correlational design was used to investigate the correlation between the use of mobile devices and physical fitness among Grade 11 students. The design was the most suitable since the purpose of the study was not only to observe and describe but also to discover if a statistical relationship existed between the variables and not manipulate them (McBurney & White, 2009). This design allowed the researcher to collect data that could prove if there was a relation between changes in the use of the mobile device and the change in physical fitness. Correlational designs were thus suitable for investigating the existence of relations between different variables according to Creswell et al. (2018). In addition, it allowed the researcher to give a description of the behavior and physical fitness of the population in question.

Environment

The study was conducted in a private educational institution called the University of San Carlos - North Campus (San Carlos School of Cebu, Inc.), which is a Catholic university located at General Maxilom, also known as Mango Avenue, Cebu City, Philippines. One of the major private universities in the area, this campus has a huge number of Grade 11 students taking up several types of academic strands. There are many advanced facilities present in this campus, including an internet-enabled study area, fitness center, sports center, and classrooms equipped with multimedia systems. These give students a chance to take part in both educational and recreational activities in this area. The presence of physical areas alongside technological advancement renders it a good place to conduct research regarding screen time versus playtime.

This shows that the importance of this place lies in its students, who can be categorized as highly motivated and academically inclined, digitally active, and often faced with balancing their screen time with their physical fitness. By focusing on these students in this place, this study hopes to present the true digital behavior of Grade 11 students, showing the possible effects of the usage of mobile devices on their physical fitness level.

Participants

The study included a group of chosen Grade 11 students from the University of San Carlos North Campus, reflecting a range of academic strands: Accountancy, Business, and Management (ABM); Science, Technology, Engineering, and Mathematics (STEM); Humanities and Social Sciences (HUMSS); and Arts and Design. The intended participants were anticipated to constitute twenty (20) percent of the overall Grade 11 student population, ensuring an adequate and diverse sample for analyzing mobile device usage and physical fitness levels among the different strands.

Inclusion Criteria. These were the inclusion criteria observed in the study: the participants had to be currently enrolled as Grade 11 students at the University of San Carlos North Campus; they had to belong to any of the academic strands; they had to provide a written informed consent to participate in the study; and finally, they had to be physically capable of performing the basic physical fitness assessments.

Exclusion Criteria. These were the exclusion criteria: the participants were excluded if they were diagnosed with medical conditions that restricted them from participating in any physical activity; moreover, they were also excluded if they had irregular enrollment; and most importantly, students who did not provide consent or withdrew from the study at any stage were also excluded.

Students who met the inclusion criteria were selected through a non-probabilistic, convenience sampling technique, considering the ease of access, availability, and proximity of the participants to the researcher. This sampling method allowed the researcher to gather data efficiently within a school setting, with consideration to the time and resource constraints. Although this method might pose limitations to the representation of the results, it was appropriate for exploratory studies such as this one, where the main goal was to determine relationships within a specific population.

Instrument

A questionnaire made by the researcher was used in the study for collecting data regarding the use of mobile devices and the physical activities of the students. The paper-and-pencil questionnaire designed by the researcher was subjected to validation using the Content Validity Index (CVI).

The questionnaire had nine questions categorized into two groups. The first group consisted of six questions focusing on the play time of students and measuring their physical activities within the last seven days. On the other hand, the second group had three questions measuring the number of hours spent by students playing games, browsing the internet, and watching online videos via their mobile devices.

The purpose of the questionnaire was to obtain information on the number of times, the duration, and type of physical activities and mobile phone usage that corresponded with the major research objective. Six questions on physical activities were subdivided into three different types of physical activities: active games, exercises, and physical house chores. This allowed covering the major aspects of physical activity of teenagers based on recommendations of the GPAQ by the World Health Organization, where priority was given to vigorous and moderate physical activities.

At the same time, three questions about mobile devices covered such activities as gaming, surfing the Internet, and viewing videos, taking into account the contemporary trends in the digital life of teenagers, as described by the Pew Research Center and Common-Sense Media. It was stressed that the questionnaire had been developed in a short and convenient format in order not to burden the respondent. The major goal was to obtain the required information for correlation analysis. Thus, all questions had a close-ended answer format to acquire quantitative information.

Moreover, there was also conducted a pilot test that measured the clarity, average time taken to complete the test, comprehension of items, and test-retest reliability. Fifteen Grade 11 students from different classes, not included in the main body of the respondents, were asked to fill up the questionnaire. Student feedback on the questionnaire also was taken by giving them a debrief sheet in which the participants were asked about the length of the questionnaire and about any confusing terms or any confusing content in it. A value of 0.70 and above was considered to be good enough for internal consistency using Cronbach's alpha.

Along with the questionnaire, a Physical Fitness Test Scorecard was given to the students so that they could record their own physical fitness test results, including BMI, cardiovascular endurance, flexibility, and muscular endurance tests. The tests performed included V sit-and-reach, 3-minute step test, zipper test, basic plank, and push-ups.

Data Gathering Procedure

Pre-Data Gathering. Before the start of the process of gathering the information, some key actions were taken to ensure that the process was ethically conducted, and the participants were fully aware of the study. In the first step, the research proposal was submitted to the University of the Visayas Research Ethics Committee (UV-REC) where an ethical review took place. The Notice to Proceed (NTP) was then issued allowing the collection of data to begin.

A transmittal letter was drafted and forwarded to the school administration to obtain authorization for conducting the study on campus and to solicit the involvement of Grade 11 students as research participants.

In addition, informed consent and parental consent were secured due to the participants not being of legal age. A parental consent form was distributed to be signed and returned. Meanwhile, informed consent forms were provided to the students for their agreement to willingly participate in the study. Both forms emphasized the voluntary nature of the respondents' participation and their option to withdraw from the study at any time without academic repercussions or penalty.

Aside from the aforementioned documents, testing paraphernalia was prepared for the physical fitness tests including a first aid kit, individual score cards, and equipment for each test. The students were informed to wear appropriate clothing and take note of important reminders for the physical fitness tests.

Actual Data Gathering. The data for this research were gathered from Grade 11 students from the University of San Carlos North Campus. Prior to the actual administration of the research instruments for data gathering, informed consent forms were distributed to the parents or legal guardians along with the assent forms for the students as they were still minors. Only students who returned their signed consent and assent forms were able to participate in the study.

The primary instruments for the data gathering process were a self-developed physical activity and mobile device use time questionnaire and a Physical Fitness Test Scorecard. The former was designed to measure the students' screen time and physical activity while the latter was structured as a record sheet for the test results of the students.

These instruments were personally administered in paper format by the researcher in the gymnasium during an agreed schedule within class hours, granted that permission had been obtained from the subject teachers. Prior to the distribution of the questionnaires and scorecards, students were given detailed instructions on how to accurately answer the questions and record the results. The instructions highlighted the importance of maintaining the confidentiality and anonymity of their responses.

The students were allotted 15 minutes to finish the self-report questionnaire. Subsequently, physical fitness tests were administered using a structured rotation system, which lasted around one hour, based on the average duration reported in similar studies. The tests were conducted in the school's designated gym facilities to provide sufficient space and ensure safety. A set of warm-up exercises and dynamic stretching exercises was conducted to prepare the students for the physical fitness test.

The physical fitness tests followed standardized protocols as defined in the Revised Physical Fitness Tests Manual per Department of Education Order No. 034, s. 2019. Each of the five tests was assigned into a station. The participants were split into five groups and paired in a buddy system as well to allow simultaneous conduct of the tests. Each pair took turns in recording the results of their partner to minimize potential bias. The sequence of administering the tests was ensured such that tests requiring cardiovascular endurance and tests involving the same muscle groups were not taken in succession.

The researcher supervised the testing process with the subject teacher during the entire session to provide any assistance needed, especially in monitoring the self-reported fitness results of the students.

Post Data Gathering. After all responses had been collected, the data were securely stored and handled with the utmost confidentiality. Physical copies of the questionnaires with responses and score sheets were kept in a locked cabinet. Collected responses were coded in preparation for analysis. This data were compiled in a password-protected digital file accessible only to the researcher.

After using the data according to its indicated purpose, the same was retained for a maximum of one year after the completion of the research study with consideration to the ethical guidelines and once it was already published. Once the one-year period had lapsed, all digital files were deleted, and physical documents were shredded.

Data Analysis

The students' responses to the physical activity and mobile device use questionnaire were analyzed through a scoring protocol. The categorical score of the physical activities will be obtained to categorize them into three levels namely inactive, minimally active, and HEPA active with reference to the definition used for the International Physical Activity Questionnaire (IPAQ). Meanwhile, the time reported by the students spent on the digital activities will be converted to continuous scores expressed as Metabolic Equivalent (MET)-minute per week.

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On the other hand, the results of the physical fitness test will be converted into z-scores and added. After obtaining points for each test item, the final fitness results will be categorized as excellent (>4), good (3 – 3.9), moderate (2 – 2.9), poor (1 – 1.9), and very poor (<1).

Frequency and Measures of Central Tendency. The mean, media, and mode will be computed to summarize the data collected on the students' screen time and fitness results. The mean will be computed to ascertain the average screen time and physical fitness scores. This analysis will help in recognizing overarching trends and patterns within the student demographic. Furthermore, this will also support the analysis of correlation between the variables by showing how usual screen time and fitness levels relate to each other.

Pearson's Product-Moment Correlation Coefficient. This will be used to determine bivariate correlations between the mobile device usage and physical fitness levels of the students. IBM SPSS 26.0 software (International Business Machines Corporation, Armonk, NY, USA) will be utilized to administer the statistical analysis.

Ethical Considerations

Ethical considerations were of utmost importance when conducting this research. Approval was secured from the University of the Visayas Research and Ethics Committee, Ref. No. 2025-0298, dated July 11, 2025. The participants of this study were students who chose to take part in a pen and paper-based survey and physical fitness test. Before taking the survey and fitness test, informed consent from the participants as well as from their legal guardians (in case of minors) was secured in order for the participants to know about the objectives, processes, advantages and disadvantages, privacy policies, voluntariness, and how to reach the researchers. There were no financial rewards given to participants.

RESULTS AND DISCUSSION

Average Weekly Hours of Playtime Activities

For the current research, the following made up playtime: (a) active play, including sports or obstacle races; (b) exercise, including walking, running, or jogging; and (c) housework that required students to undertake some form of physical work. From the results obtained, students were said to participate in physical activities moderately during the week.

Students involved in active games were doing it on average 2–3 days a week for 1–2 hours at a time; this meant that students had occasionally structured physical activities. As for their exercise activities, students were involved quite regularly in physical exercises on 3 days a week, dedicating enough time to moderate exercises. At the same time, students performed different household chores, which could be considered physical activities, 4–5 days per week; therefore, in case of little participation in formal physical activities, students could engage in other physical exercises daily. Thus, although many students spent much time watching screens, this meant that lots of students still engaged in physical activities actively on a weekly basis. The values provided were approximate total amounts of time per week when considering the number of days and hours spent on the particular activity.

Table 1
Average Weekly Hours of Students' Playtime Activities.

Playtime Activity	Mean	Standard Deviation
Active Games	2.5	1.2
Exercise	1.8	0.9
Household Chores	1.4	0.7
Total	**5.7**	**2.8**

N = 270; Parameter Limits: Active Games (0–14 hours/week), Exercise (0–10 hours/week), Household Chores (0–8 hours/week)

From the above table (Table 1), Grade 11 learners spent an average time of 2.5 hours playing active games per week, which was more than other types of activities in play time activities. These findings indicated that students had a trend of participating more in organized or social activities. Furthermore, since the highest standard deviation (SD = 1.2) existed for active games, it implied

that while some learners participated in the activities for long hours, others did not participate much due to either individual preferences or lack of facilities.

As far as household chores were concerned, they had the least mean of 1.4 hours per week. This might be attributed to the limited household responsibilities that existed among students. Besides, household chores were normally done at intervals or in bursts.

The conclusions reached above, especially the high engagement rate of active games, aligned with those made in a study conducted by Reed et al. (2020). In the study, they found that adolescents tended to favor forms of recreation that stimulated competitiveness, fun, and socialization – aspects that are typically involved in active games. Another study conducted by Guedes and Netto (2013) revealed that peer involvement was critical in motivating adolescents' physical activity behavior.

In contrast, the limited time spent on household chores aligned with the findings of a study by Ramos and Cacho (2019), which highlighted that Grade 11 students currently spent considerably less time on domestic responsibilities due to extracurricular commitments, academic schedules, and changing household dynamics in which helpers or parents performed more of the household tasks. These related studies supported the patterns shown in the present data, indicating that adolescents prioritized enjoyable, socially driven activities over routine domestic tasks.

The conclusions drawn from this research indicated that playing activities had an essential impact on the general energy consumption and health status of pupils.

The increased participation in playing games implied that children tended to engage more in active pastimes, which made such activities good tools to support healthier behavior. Moreover, reduced involvement in household duties implied that domestic duties were not sufficient to meet children's exercise requirements. Therefore, it became apparent that there should be more attention paid to developing interesting physical activities both at schools and at homes to enhance their physical health.

Average Hours of Screen Time Activities

Establishing a clear understanding of students' mobile device use is important for assessing the factors that may contribute to sedentary behavior and reduced physical activity among Grade 11 students. Activities such as internet browsing, video streaming, and gaming are the most common forms of digital use among adolescents. These behaviors can provide insights into screen exposure duration, daily routines, and physical fitness levels. This highlights the importance of analyzing the amount of time students allocate to each activity.

Table 2

Average Hours of Students' Screen Time Activities

N = 270; Parameter Limits: Playing mobile games (0–10 hours/day), Browsing through the internet (0–8 hours/day), Watching online videos (0–8 hours/day)

Category	Mean (hours/day)	Standard Deviation	Description
Playing mobile games	3.5	1.5	High screen engagement
Browsing through the internet	2.7	1.1	Moderate screen engagement
Watching online videos	2.2	0.8	Moderate screen engagement
Total	**8.4**	**3.4**	

Table 2 showed that students spent an average of 3.5 hours playing mobile games each day, followed by 2.7 hours surfing the internet and 2.2 hours watching videos on their devices. As one could see, the time spent on mobile games on a daily basis was higher than the amount of time spent on exercising physically.

As per the data collected from the survey, mobile games received the most amount of time from the participants compared to other screen time activities. It seemed that this was because mobile games were extremely engaging and addictive due to their ability to motivate users to continue playing by virtue of social components and challenges in them.

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On the other hand, online video watching showed the least mean of 2.2 hours, which might be attributed to the students' desire for more interactive digital entertainment as opposed to the passive mode. Usually, video streaming services were used by the students as a second-level activity that involved leisure, which was less time-consuming than playing mobile games that involved focused attention.

Several empirical studies justified the high use of mobile games by young adults. For instance, in the work by Kuss et al. (2018), mobile games were purposely designed to ensure the maximum engagement level of the users by using social connectivity and reward loops, hence making them attractive to the young generation.

The findings of a study by Lopez-Fernandez (2019) also supported high levels of mobile gaming by high school learners because they had constant updates and were easy to access, thus keeping users interested. At the same time, Rideout and Robb (2022) suggested that although most young people watched online videos, they did so in brief sessions since video consumption lacked the interactive element of gaming.

Based on these results, it could be stated that mobile games played a vital role in contributing to the amount of screen time among students. It might lead to increased sedentary behavior as well as fewer opportunities for moving around during the course of the day. Taking into consideration the significance of mobile games, it should be noted that there was a need to find ways to balance such habits and maintain health and entertainment simultaneously. Hence, it could be useful to ensure that children spent time moving around without decreasing their screen time.

Physical Fitness Levels of the Students

One of the main signs of students' physical activity level, functionality, and general well-being is their physical fitness. Different factors, like body composition, flexibility, cardiovascular endurance, and muscular endurance, can be evaluated as the means of assessing the physical state of young people. Such assessments may prove helpful in terms of analyzing students' lifestyle behaviors, as well as their influence on the students' physical state. The results of physical fitness testing performed on Grade 11 students are summarized in Table 3.

Table 3
Average Physical Fitness Levels

Fitness Measure	Mean	Standard Deviation	Description
Body Mass Index (BMI)	22.5	3.1	Normal/Healthy weight range
Cardiovascular Endurance	75.4	10.2	Good cardiovascular fitness
Flexibility (cm)	18.7	5.6	Moderate flexibility
Muscular Endurance (reps)	35.6	12.4	Good muscular endurance
Total	**152.2**	**31.3**	**Moderate-Good overall physical fitness**

N = 270; Parameter Limits: BMI (15–35 kg/m²), Cardiovascular Endurance (40–100 fitness score/VO_2-based scale), Flexibility (0–35 cm sit-and-reach), and Muscular Endurance (0–70 repetitions)

The physical fitness scores of the students were presented in Table 3 below. The BMI measurement had an average of 22.5 and standard deviation of 3.1. However, performance in physical fitness was represented by the following scores: cardiorespiratory endurance score of 75.4, flexibility of 18.7 cm, and muscle endurance score of 35.6 reps. The overall result in physical fitness was an average of 152.2 with a standard deviation of 31.3.

The mean of cardiovascular endurance was the highest (75.4). This was an indication that the students had sufficient stamina for physical activity. The reasons could be that the students occasionally engaged in walking, participating in school activities, engaging in sports, or traveling to places which required some form of cardiovascular exercise. Flexibility had the least mean value (18.7 cm). It showed that the students rarely participated in any form of exercises that improved their flexibility. They might have been spending much time on their mobile phones and were seated for long periods of time doing homework or other chores.

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There were existing studies to support the fitness trends recorded. In a study conducted by Ortega et al. (2008), cardiovascular endurance was seen to be one of the most prominent components of fitness among young adults because of their regular habits like attending school events and walking, which aided in building up aerobic fitness.

On the other hand, there were studies showing that flexibility was one of the least prominent fitness components among high school students. According to López-Sánchez et al. (2021), sedentary lifestyles, which include prolonged screen time, had adverse effects on joint flexibility and mobility.

Similarly, Mayorga-Vega et al. (2014) in their research revealed that younger individuals hardly partook in any type of stretching activity unless they had to take part in sport activities. As such, there was low flexibility levels compared to the other fitness levels. The same applied to the findings of the current study, thereby confirming the idea that flexibility was underdeveloped among young adults.

Additionally, the findings from this study emphasized the importance of adopting strategies to ensure proper physical activity development, taking care of all the fitness dimensions. In this regard, although cardiovascular endurance might be at the desired level of development, the low flexibility levels called for actions aimed at improving mobility exercises, improving posture, as well as undertaking stretching activities. This could be done through incorporating dynamic warm-up, stretching exercises, and other activities aimed at ensuring students moved their bodies to prevent the adverse impact of prolonged sitting. Such strategies would help improve these fitness indicators.

Mean Fitness Score by Screen Time Group

Table 4
Fitness Score by Screen Time Group

Screentime Group	N	%	Mean (z-score)	Standard Deviation	One-way ANOVA
Low	86	31.85%	0.002	0.733	F-value = 0.682
Moderate	129	47.78%	0.033	0.546	$P = 0.506$
High	55	20.37%	-0.075	0.502	$\eta^2 = 0.0051$
Total	**270**	**100%**	**-0.04**	**1.781**	**Not significant**

N = 27; Parameter Limits: Low screentime (0–3 hours/day), Moderate screentime (3.1–6 hours/day), High screentime (>6 hours/day)

Use of technology had become a vital component in students' lives because their lifestyles could impact their physical fitness. It became necessary to classify students according to the level of hours used on mobile phones to establish the differences in physical fitness due to the use of screens. This study sought to establish whether there was a relationship between excessive use of mobile phone screens and performance in physical fitness exercises.

Table 4 showed mean fitness scores of the students in each of the three different screen time groups. The highest mean fitness scores were achieved by the moderate screen time group (M = 0.033, SD = 0.546), followed by the low screen time group (M = 0.002, SD = 0.733). The lowest mean scores were recorded by the high screen time group (M = -0.075, SD = 0.502). The overall mean fitness score of all 270 students was 0.04, thus showing minimal difference between the three screen time groups.

As a result of the analysis of these descriptive results, one could assume that the moderate screen time group (students spending 6–12 hours watching screens) had the highest fitness scores. This could be associated with the possibility that these students had better lifestyles, where physical activities, sufficient rest, and moderate use of modern technologies occurred simultaneously. On the contrary, the highest screen time group (spending at least 13 hours daily viewing screens) showed the lowest mean scores. Therefore, students spending much time using mobile devices might have been engaged in more sedentary activities due to lack of time for exercising.

A link had been observed between high amounts of screen time and poor physical fitness in the literature. According to Tremblay et al. (2016), the effect of excessive amounts of screen time among adolescents was poor muscular endurance and cardiorespiratory fitness. Additionally, according to Garcia-Hermoso et al. (2018), there was a negative correlation between high screen time and physical fitness indicators, especially in cases where the screen time amounts to more than 10 hours each day.

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However, the researchers also noted that high amounts of screen time did not affect fitness negatively if a person led an active life and engaged in structured exercises on a daily basis. This notion was also supported by the findings of the current study.

Furthermore, the significant aspect that could be emphasized through this study was the necessity of finding a balance between sufficient physical exercise and usage of electronic devices among Grade 11 students. Although the use of electronic devices had become a part of the educational and leisure processes, the overuse of such gadgets could cause poor results in the level of physical fitness because of the encouragement of being inactive. The adoption of proper habits related to electronic devices, such as reducing unnecessary screen time, performing daily physical exercises, and taking breaks, could improve the physical fitness of students.

One-Way ANOVA Results for Screen Time Groups

A one-way ANOVA analysis was done to test if the level of screen time had any statistical significance in terms of the effect it had on the physical fitness of the participants. It was the best test for this type of research question since it compared the means among different independent groups: low screen time, moderate screen time, and high screen time users.

According to Table 5, the results yielded an F statistic value of 0.682 and a p-value of 0.506 that was greater than the threshold value of 0.05. Additionally, the magnitude of the effect ($\eta^2 = 0.0051$) was considered very small. In other words, the results suggested that there was little variation in fitness scores accounted for by screen time variability.

This finding indicated that the variations in physical fitness levels between the low, moderate, and high screen time categories were not significant from a statistical point of view. Although there were slight differences in terms of descriptive statistics with higher fitness scores for those in the moderate category, the ANOVA results indicated that these variations were not significant enough to be seen as having any statistical significance.

The outcomes of earlier studies conducted to investigate the link between screen time and physical fitness were varied. In one such study by Gopinath et al. (2012), the inverse relationship between screen time and the levels of physical fitness among younger individuals was observed, and thus the negative behavioral relationship was established. On the other hand, some recent studies such as Carson et al. (2016) have shown that there were other factors that determined the effect of screen time, including parental restrictions, sleeping behavior, and physical activities.

The same applied to the current study where there was no significant difference in the fitness levels based on the variations in screen time. In addition, Suchert, Hanewinkel, and Isensee (2015) showed that there was a reduced impact of screen time on physical fitness because physical activity played a vital role in the fitness level of a person, just as shown in the findings of the current ANOVA test.

The results of this study suggested that interventions aimed at enhancing students' fitness should not be limited to merely reducing screen time; instead, they should emphasize the promotion of encouraging active lifestyles and the integration of consistent physical activity into daily routines. While excessive screen time might contribute indirectly to sedentary behavior, the findings indicated that screen time alone was not a significant predictor of fitness performance. Therefore, it might be advantageous for parents, schools, and policymakers to advocate for active play, movement breaks, and structured physical activities, rather than concentrating solely on limiting screen time.

One-Way ANOVA Results for Screen Time and Playtime

Table 5

One-Way ANOVA Results for Screen Time and Playtime

Significant level at 0.05

F-value	p-value	(η^2)	Interpretation
2.14	0.129	0.09	Not significant

Nevertheless, the one-way ANOVA test performed in order to check whether there were statistically significant differences in playtime between children from groups with different amounts of screen time did not show any significant findings. In particular, since the value of F equaled 2.14 and the significance level was 0.129, it was possible to claim that while there was definitely some tendency towards reduced playtime when the screen time increased, the strength of this effect was still too weak to treat it as statistical significance. This could be explained through the effect size ($\eta^2 = 0.09$).

It implied that the screen time variable could not be treated as an important determinant of kids' playing time in terms of the current dataset. As for the factors that should be analyzed as more relevant, they included parenting techniques used by the kids' parents, presence of green areas around their homes, interactions with friends, class schedules, and personal preferences of children. Moreover, it was quite probable that kids with increased screen time spent time on other activities, such as physical exercises at schools.

This study underscored the importance of complexity in understanding the relationship between screen time and exercise from an academic point of view. Although past studies had found a strong correlation between increased screen time and reduced levels of playing, the null results in this study indicated that any small change in screen time did not influence playing behavior.

In light of this, the inclusion of factors such as socioeconomic status, parenting styles, and content of screen activities (learning or entertainment), among others, in future studies was necessary.

As far as application was concerned, although the suggestion of minimizing screen time was important in encouraging good health behaviors, other measures might prove to be more effective. In addition to minimizing screen time, promoting both structured and unstructured playing should be considered.

Independent t-Test Comparing Low and High Screen Time Groups

Table 6

Independent t-Test Comparing Low and High Screen Time Groups

Comparison	t-value	p-value	Effect Size (d)	Interpretation
Low vs. High	0.7325	0.4651	0.119	Not significant

Significant level at 0.05

An independent t-test was conducted to further explore differences in physical fitness between students with contrasting screentime habits. This inferential test compares the fitness scores of the low screentime group (≤ 5 hours/day) and the high screentime group (≥ 13 hours/day). The test assesses whether significantly different screentime levels equate to meaningful implications in physical fitness performance.

Results for the Independent T-Test can be seen from Table 6 below; the result obtained for the test is the t-value of 0.7325 having the probability value of 0.4651 which is more than the level of statistical significance which is 0.05. Effect Size (Cohen's d= 0.119) indicates that there exists a very small effect. This means that the fitness level of students with low and high screen time is similar since it shows that there is a very little difference between the two fitness scores.

From the results obtained for the independent t-test, it can be concluded that the overall fitness level of students in the low and high screen time categories is the same. It may be expected for the fitness level of students having high screen time to be lower since they engage less in physical activities. But according to the statistical analysis done, this is not the case. Therefore, it proves that the fitness level of students classified as high and low screen time is almost the same.

The findings from previous research could utilized in comprehending these non-significant results. Kracht and Sisson (2018), for example, noted that despite the possibility of a possible link between excess screentime and sedentary behavior, its effect on the fitness of an individual is mediated through physical activity levels. Similarly, Diaz et al. (2019) also discovered that screentime may not be used as a reliable predictor of fitness unless low physical activity levels are taken into consideration. Furthermore, Suchert et al. (2015) reiterated that the harmful effects of screen time on fitness may be considerably weakened in individuals who undertake enough physical activities. These findings were consistent with the results obtained in the present study since the physical fitness scores among high screentime users did not significantly differ from those of low screentime users.

On top of these, these results indicated that interventions to enhance student fitness should center more on encouraging physical activity rather than focusing on restricting screen time alone. Screentime remains a significant behavioral factor, however, it does not immediately equate to poor fitness results. Promoting school-based physical activity programs, regular exercise, and active play may result in better fitness improvements that strategies focused on screentime reduction.

Table 7

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Pearson Correlation Between Screentime and Physical Fitness Levels

Variable	r (Pearson)	p-value	Interpretation
Total screentime (hours/day)	-0.06	>.05	Very weak, not significant
Muscular endurance	0.45	<.01	Strong correlation with composite fitness
Flexibility	0.22	<.01	Moderate correlation
Cardiovascular endurance	-0.10	>.05	Not significant
BMI	-0.18	<.01	Lower composite fitness

A Pearson Correlation analysis was conducted to further determine the relationship between the daily screentime of the students and their physical fitness levels. This inferential test examined the direction and strength of association between screentime and different fitness measures such as BMI, cardiovascular endurance, flexibility, and muscular endurance. The test provides inferences into the association between the increased mobile device use and improvements or decline in specific fitness measures.

Table 7 illustrates the coefficient of correlation between time spent on watching screens and the physical fitness levels. It can be seen from the data that the coefficient of correlation between total time spent on screen and physical fitness level is very weak and insignificant, while a coefficient of correlation between muscular endurance and total time spent on screen is rather high and significant. At the same time, the coefficient of correlation between flexibility and total time spent on the screen is moderate and significant. On the other hand, cardiovascular endurance has no significance (the coefficient of correlation is –0.10). BMI has a significant negative coefficient of correlation (r = –0.18).

The presented results clearly pointed out that there was not much correlation between screen time and physical fitness; however, different correlations exist for different types of physical fitness. For instance, there is a significant positive correlation between screen time and muscular endurance, which means that even though some students spend a lot of their time using mobile devices, they do take part in some kinds of physical activities developing muscular strength.

Additionally, the positive moderate correlation found between screen time and flexibility shows that spending too much time with gadgets cannot decrease a person's mobility. At the same time, it should be noted that cardiovascular endurance and BMI are negatively correlated with screen time. This finding confirms common trends associated with prolonged periods of immobility that lead to worse cardiovascular health condition and high body mass index.

Previous studies also showed that screen time can negatively influence a person's health condition and physical fitness, and the presented results agree with those. For instance, Tremblay et al. (2017) showed that increased screen time was related to higher BMI and worse cardiovascular endurance; however, its connection with flexibility and muscular endurance could be different based on the activity level of participants.

Carson et al. (2016) further observed that consistent engagement in exercise activities could help the same group of people counteract some of the negative effects associated with screen time activities. On the other hand, the results presented by Sanders et al. (2019) showed that there was a poor connection between screen time and fitness in general, like what has been found in the current paper, although strong connections existed when the fitness components were considered separately.

Output of the Study: Mangubat's Balanced Living Program

Based on the findings of the study, an intervention program entitled **Mangubat's Balanced Living Program (BLP)** was developed as the primary output of the research. This program was designed in response to the identified relationship between increased screen time, reduced physical activity, and declining physical fitness levels among students. The Balanced Living Program aims to promote healthy lifestyle behaviors within the school environment by encouraging regular movement, responsible screen use, and overall wellness. Through innovative, accessible, and school-based activities, the program seeks to help students achieve a healthier balance between technology use and physical activity, thereby supporting their physical, mental, and social well-being.

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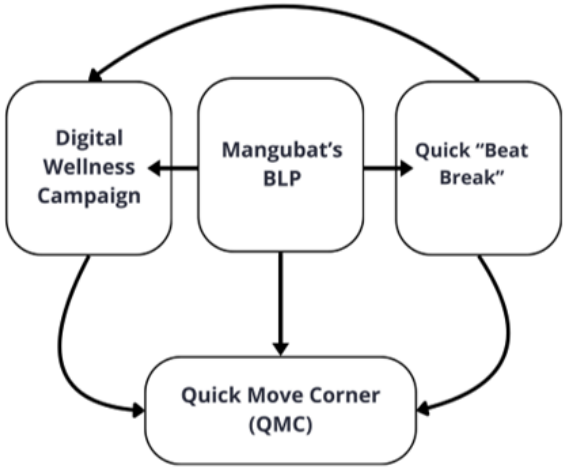
Figure 2

Mangubat's Balanced Living Program (BLP)



Description

The BLP, as proposed by Mangubat, is a multi-dimensional wellness program created to counteract the adverse impacts of screen time and promote healthy activities and practices among students within the school setting. Specifically, the program comprises three essential elements, namely: (1) QR Code-based Quick Move Corner, which involves placing QR codes that lead to short video clips containing guided exercise routines conducted by Physical Education teachers; (2) Digital Wellness Campaign, which involves health talks on eye protection, free eye screening, and appropriate screen usage behavior, which are accessible to both students and teachers; and (3) Beat Break Activity, which is a one to two-minute school-wide call for movement initiated by music, which entails conducting breathing exercises, physical activities, and stretching routines.

QR-based Quick Move Corner. The Quick Move Corner is one of the components of the proposed intervention strategy based on the use of QR codes. It represents an innovative, easy-to-use intervention aimed at addressing the growth in the trend of sedentary lifestyle associated with spending excessive time on screens within the school environment. QR codes that will be distributed throughout the campus environment and will be connected to videos featuring demonstrations on exercising routines prepared by the Physical Education teachers comprise this component of the intervention. With respect to the concept of QR codes, therefore, modern technology could be used to organize activities that would protect students from sedentary behavior. By using personal technological devices, like smartphones and tablets, individuals could scan the QR codes and perform exercises that include even breathing exercises.

In addition, the new program utilizing the QR code encourages autonomy, adaptability, and self-control, allowing students to choose when to be physically active without affecting their academics. This program employs behavioral change techniques which stress the importance of availability and the environment as key factors in forming positive behavior. The existence of easily noticeable QR codes at different locations across the university campus acts as a reminder that exercise is simply part of the school environment. Lastly, the introduction of this component helps promote the educational aspect of the BLP, illustrating the potential for technology to promote wellness. Contrary to what many people might think, mobile devices are not barriers but rather means through which active living may be achieved.

At its core, the Quick Move Corner using QR technology is a sustainable, affordable, and effective strategy that integrates exercise into the everyday lives of the students. It promotes behavioral change by making the practice of moving frequently part of the regular routine of the students and cultivating a positive culture of wellness in the school. Being a component of Mangubat's Balanced Living Program, this feature enhances the effectiveness of the entire program design by combining technological and physical components of wellness in an integrated manner.

Digital Wellness Campaign. The Digital Wellness Campaign can be described as an initiative aimed at educating students on the need for mindful use of technology, since using technology does not have to be negative per se. The Digital Wellness Campaign

teaches students how to engage in responsible use of technology in such a way that they get benefits out of their use of technology without compromising their health.

A range of interactive and educational activities will be part of the program based on the requirements of the students. Workshop sessions will teach the students how to maintain healthy practices when using screens, including taking care of their eyes from the risk of eyestrain, how to maintain balance in their sleeping pattern when dealing with their devices, and how to practice proper posture when engaging with their screens.

Additionally, to the mentioned workshops, the campaign encourages students to use the functions available on smartphones that can help with self-monitoring and self-regulation of screen time – focus mode, timer for apps usage, and notifications management.

Furthermore, the campaign is aimed at making students aware of applications and methods that can promote productive and meaningful use of screens – time management, goal setting, exercise logging, mindfulness and other useful applications.

Finally, the Digital Wellness Campaign is meant to ensure that students perceive digital devices as a necessary means of today's world but understand that their use must be moderate and meaningful.

Thus, this initiative helps students to realize that technology, if used wisely, may be extremely useful in learning and self-development processes.

Quick Beat Break. The Beat Break plays a direct role in achieving one of the key goals of the BLP, that is, to encourage balance between physical activity and being sedentary while engaging with technology on the part of the students. Indeed, many students find themselves spending a great deal of their time sitting down as a result of having to perform various activities related to academic work, lessons at school, and use of computer equipment.

For this reason, the Beat Break includes short intervals of physical activity that help break the continuity of being sedentary for extended periods of time. Such short bursts of light physical activity, including simple movements and stretching exercises, not only keep students focused but also relieve muscle tension and restore energy. At the same time, simplicity of this type of activity allows encouraging all members of the educational institution to participate in the process, thus forming a positive environment of wellness and good health.

On one hand, the Digital Wellness Campaign is a part of the BLP in its role to encourage balanced usage of technologies and engagement in physical activities in students' life. The campaign helps the BLP because it increases students' knowledge on how to use digital devices consciously, be physically active (posture, sleep, eye care, etc.), and use digital wellness tools included in their devices. Thus, it makes sure that students know how to behave in digital worlds responsibly and not consider technology usage dangerous per se. On the other hand, the Beat Break component reinforces and enhances the BLP since it encourages teachers, staff, and students to include consistent physical movements into school routine. Therefore, both elements contribute to the BLP through involving physical exercises, social environment, and digital wellness into one program which promotes healthier lifestyle of students beyond the walls of the school.

The recommendations offered by BLP present a research-backed intervention that will allow students to develop digital wellness, physical activities, and good health practices in a fun way. Cooperation among school, parents, and community will be useful for promoting the development of students' healthy behaviors.

Relevance of Output to the Study

The results of this study, Mangubat's Balanced Living Program (BLP), are aimed at tackling the primary purpose of conducting this investigation: the correlation between screen time and play time, and the methods of creating an intervention which promotes balancing between these two aspects. Although one-way ANOVA analysis demonstrated the lack of statistical significance between levels of play time within screen time categories, BLP offers practical guidelines on fostering balanced physical and digital activity.

In terms of its relevance to this study, Mangubat's BLP includes:

Evidence-Based Intervention for Physical Activity. The components "Quick Move Corner" and "Beat Break" are aimed at fostering active physical activities during the course of day. They include quick exercises to be done by students within their classes in order to promote physical activity in addition to screen time.

Promoting Digital Wellness and Mindful Screentime. The Digital Wellness Campaign works alongside the physical activity initiative in teaching students how to engage positively with technology. While digital gadgets are not intrinsically bad for you, one must be careful about their use. This is backed up by the results revealed by the research, which shows that there are cases wherein play time and screen time do not exhibit inverse proportions. This highlights the insignificant results revealed in the ANOVA test. It is through this method that screen usage can be altered using behavioral intervention rather than just controlling the amount of screen time.

Holistic and Sustainable Approach. Social support, through the involvement of teachers, staff, and students, ensures sustained behavioral change. This is informed by the implication from the study that screen time might not completely explain the differences in play time since other factors like environmental and social aspects may play a part. Through the establishment of wellness culture in the school, the BLP aims to encourage the practice of healthy behaviors that involve both physical and screen activities.

Application of Research Results into Practice. While the data obtained through statistical calculations in the study implies no significant connection between screen usage and playtime, BLP proposes some approaches to ensure the maintenance or increase of playtime regardless of screen exposure. Therefore, the Balanced Living Program may be viewed as an application of the results obtained from the research.
Generally speaking, one may say that the Balanced Living Program proposed by Mangubat is highly relevant as it uses the outcomes obtained through the conducted research. There are various aspects that make up this program which include a balanced combination of screen-based activities and exercises as well as an appropriate use of technological devices.

Mangubat's Balanced Living Program (BLP)

Rationale

In addition to the recommendations presented above, this study recommends the creation of the Balanced Living Program (BLP) to recommend practical actions to support the findings. The BLP is an initiative at the school level that will be aimed at promoting balanced usage of mobile devices, exercising and wellbeing among Grade 11 learners.

The Balanced Living Program (BLP), according to Mangubat, was created to counter the increasing problem of too much screen time and less physical activity. In line with the findings of the current study that indicate the adverse effects of prolonged mobile device usage on the physical fitness levels of the learners, especially their BMI and cardiovascular endurance, it is proposed to create a program that would offer easily implementable initiatives in this regard. The program will incorporate video exercises and short physical activities for both the students, teachers, and the whole school staff.

This output is very relevant since it encourages healthy school culture and active involvement in well-being initiatives. On the part of the learners, they will receive the benefit of having better physical activity behaviors while the teachers will have means to promote exercise among their learners.

General Objective

The fundamental role of the BLP is to introduce a comprehensive wellness program across the entire school in order to minimize the detrimental consequences of the increased use of screens and promote digital wellness among the school community. Based on the results of the conducted research, this program is expected to address the gap between the use of mobile devices and sedentary behaviors by implementing convenient, sustainable, and easy-to-follow measures.

Specific Objectives

1. To promote daily physical activity within the school premises through short, guided movement routines accessible via QR codes;
2. To enhance digital wellness by raising awareness within the school community about healthy screen habits, including eye care and responsible mobile device use; and
3. To reduce sedentary behavior by incorporating short "Beat Break" movement intervals into the school day for students, teachers, and staff.

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Plan for Implementation

Area / Corner	Objective	Activity	Time Frame	Persons Involved	Expected Outcome
School Administration	Secure approval and support for BLP implementation	Provide a formal copy of the BLP to administrators for review and campus-wide implementation	1–2 weeks	School Administrators	Program formally approved and supported for school-wide rollout
Teacher & Student Orientation	Familiarize staff and student leaders with program goals and activities	Conduct an orientation presenting research findings, program components, and demonstrations of activities	1 week	Teachers, Staff, Student Leaders	Clear understanding of program, readiness to facilitate activities
QR-based Quick Move Corner	Encourage short bursts of physical activity during school hours	Install QR posters in key areas; students and staff scan codes to follow guided exercise videos	Continuous, reviewed monthly	PE Department, Students, Staff	Increased physical activity during school hours, enhanced engagement in micro-exercises
Digital Wellness Campaign	Promote mindful and balanced use of technology	Coordinate talks with eye specialists, provide free eye check-ups, and conduct digital wellness workshops	Monthly or quarterly	Health Professionals, Students, Staff	Improved awareness of eye care, healthy screen habits, and responsible digital engagement
Beat Break Routine	Interrupt sedentary periods with short physical movement	Play short music cue at designated times; all students and staff perform 1–2 minutes of stretching/movement	Daily or multiple times per day	Teachers, Staff, Students	Reduced sedentary behavior, improved focus, energy, and overall physical well-being

Findings

Nevertheless, the one-way ANOVA test performed in order to check whether there were statistically significant differences in playtime between children from groups with different amounts of screen time did not show any significant findings. In particular, since the value of F was 2.14 and the significance level was 0.129, it could be stated that while there was definitely some tendency towards reduced playtime when screen time increased, the strength of this effect was still too weak to be considered statistically significant. This was explained by the effect size ($\eta^2 = 0.09$).

It implied that the screen time variable could not be treated as an important determinant of children's playtime in terms of the current dataset. As for the factors that should be considered more relevant, these included parenting techniques used by parents, presence of green spaces around homes, interactions with friends, class schedules, and personal preferences of children. Moreover, it was quite probable that children with increased screen time also spent time on other activities, such as physical exercises at school.

This study underscored the importance of complexity in understanding the relationship between screen time and exercise from an academic point of view. Although past studies had found a strong correlation between increased screen time and reduced levels of play, the null results in this study indicated that small variations in screen time did not influence play behavior.

In light of this, the inclusion of factors such as socioeconomic status, parenting styles, and the content of screen activities (learning or entertainment), among others, in future studies was necessary.

As far as application was concerned, although the suggestion of minimizing screen time was important in encouraging healthy behaviors, other measures might prove to be more effective. In addition to minimizing screen time, promoting both structured and unstructured play should be considered.

Conclusion

From the results of this study, it was concluded that screen time did not have any bearing on the physical fitness level of Grade 11 students enrolled in the University of San Carlos North Campus. As indicated in the conceptual framework, both playtime and screen time could contribute to influencing the level of physical fitness; however, the findings proved that screen time alone could not dictate how physically fit a person would become. This finding supported the assertion that physical fitness was affected by several factors including behavior, motivation, environment, and activities.

According to the conceptual framework, playtime and screen time had an influence on physical fitness. Even though there was no statistical difference in screen time in terms of determining fitness level, the idea of the Balanced Living Program (BLP), which was created by Mangubat, supported the claim that physical fitness could be achieved through balancing living interventions. The components of the Balanced Living Program (BLP) included Quick Move Corners, Beat Breaks, and Digital Wellness Campaign, which helped to create physical wellness without disregarding technology.

This study affirmed that building fitness among teenagers involved an interplay of movement, management of life, and awareness regarding the use of technology. In future studies, there will be a need to include more variables such as sleep, diet, motivation, and social life in order to understand their influence on physical fitness when combined with screen time and playtime.

Recommendations

Below are a number of suggestions aimed at helping students lead healthier and well-balanced lifestyles, as per the study's results which indicate the absence of a significant relationship between mobile phone usage and physical fitness amongst Grade 11 learners. As mentioned before, the mere amount of screen time was not a factor in predicting fitness. Studies have shown that healthy lifestyle practices such as adequate sleep, routines, and exercise play a critical part in contributing to general health. Consequently, the recommendations below highlight an environment where informed digital usage is promoted, along with good habits and actions.

Enhancing Educational Practices. Educators and policy makers need to adopt techniques that combine the use of technology with exercises in order to enhance educational practices regarding their screen usage time and their physical activities. Instructors are advised to adopt assignments that have no involvement of the computer and adopt lesson plans that involve minimal sitting periods for the learners. On the other hand, policymakers are encouraged to adopt the concept of screen hygiene, wellness, and physical literacy in all subjects in order to make sure that health issues are not addressed in Physical Education alone. This way, the students will be kept physically active and at the same time learn more academically.

Schools Management. School managers are recommended to explore means of increasing variety of their physical education programs. Schools are encouraged to organize physical activity that will be available for everybody regardless of their level of fitness regardless of sedentary lifestyle. These might include physical exercise groups, recreational teams, and physical activity during break time. Besides, there is an opportunity to increase effectiveness of organizing PE lessons, particularly in terms of developing lifelong fitness qualities, such as flexibility, aerobics, and muscle power

Parents and Guardians. Parents and guardians can also play a crucial role in encouraging both physical and digital activities in their homes. Planning physical activities during weekends, behaving responsibly towards screens, having appropriate boundaries of the usage of devices, and others are some of the family initiatives which can be taken by families to reinforce classroom activities. Institutions can plan digital wellness seminars and workshops to improve family involvement.

Formulation of Policy Guidelines. It is highly recommended that schools put in place certain policies and guidelines which would help students in maintaining balanced use of digital gadgets and promoting physical activities. The school administration must provide organized physical activity periods, safe use of the Internet and digital gadgets, and policies regarding controlling unnecessary screen usage during class times. This would involve limiting the use of gadgets for tasks which are not necessary in the educational process of students and creating designated times of mandatory physical activity periods for learners. Additionally, institutions can make screen-free zones and allow no gadgets usage during such class times. Administrators can provide additional support to teachers to teach using active techniques and invest in physical activity-related facilities and wellness programs.

Future Researchers. Future researchers are advised to rely on more objective measures regarding screen time and physical activity, such as using wearable devices or applications that measure their users' levels of physical activity. The objective measure is likely to be more effective because the amount of time spent by participants on their screens does not necessarily correspond to how often they use their mobile devices.

Recommended Research Titles:

- Mobile Device Usage Patterns and Their Effects on the Physical Fitness of Senior High School Students
- The Impact of Mobile Device Usage on Physical Fitness Levels of Grade 11 Students
- Examining the Relationship Between Screen Time and Physical Activity Among Grade 11 Students

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