

The Influence of Screen Time Management and Sleep Quality on the Physical Fitness of Grade 9 Learners

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Abstract

This study examined the influence of screen time management and sleep quality on the physical fitness of Grade 9 learners at Cangawa National High School, Buenavista II District, Division of Bohol, during School Year 2026–2027, and the relationship between physical fitness and academic achievement. The study was anchored in the 24-Hour Movement Behavior Framework, Sleep Health Theory, Biopsychosocial Model, and Self-Determination Theory. A quantitative descriptive-correlational design was employed, involving 40 Grade 9 learners and seven MAPEH teachers selected through simple random sampling. Data were collected using an adapted and modified questionnaire, the 3-Minute Step Test, Right-Angle Push-Up Test, Zipper Test, and learners' Summative Test 1 scores in Physical Education and Health. Learners demonstrated high overall screen use, generally adequate sleep duration with occasional sleep-pattern disturbances, and an Average overall level of physical fitness. Endurance and flexibility were Average, while muscular strength was Poor. Academic achievement was Proficient, with 95.00% of learners classified at this level. Physical fitness showed a negligible positive and statistically nonsignificant relationship with academic achievement ($r_s = 0.027$, $p = 0.869$), indicating that physical fitness alone did not directly determine academic performance. The study recommends implementing a Health and Wellness Enhancement Program addressing screen time management, sleep quality, physical fitness, and academic support. The study aligns with SDG 3 (Good Health and Well-Being) and SDG 4 (Quality Education) by addressing adolescent health behaviors, physical well-being, and educational functioning. Its sustainability impact lies in supporting school and family practices that promote responsible technology use, healthy sleep, regular physical activity, and learners' holistic development.

Keywords: Academic Achievement; Physical Fitness; Screen Time Management; Sleep Quality; Sustainable Development Goals; Wellness Enhancement Program

1. Introduction

Technology has become central to learners' education and daily activities by supporting access to information, communication, online learning, and educational applications (UNESCO, 2023; OECD, 2021). However, increased digital engagement has raised concerns regarding screen exposure, sleep, physical activity, physical fitness, well-being, and academic functioning (Hjetland et al., 2021; Nakshine et al., 2022). This study focuses on the influence of screen time management and sleep quality on the physical fitness of Grade 9 learners and considers the relationship between physical fitness and academic achievement.

Screen time forms part of adolescents' daily routines and is associated with sleep, physical activity, and sedentary behavior (da Costa et al., 2021). Excessive gadget use, particularly before bedtime, may reduce opportunities for adequate sleep and physical activity (Sampasa-Kanyinga et al., 2022). Although smartphones, computers, and

tablets support schoolwork, communication, and entertainment, prolonged screen exposure may contribute to sedentary behavior and unhealthy sleep patterns (UNESCO, 2023; OECD, 2023; Zhao et al., 2024; Bourke et al., 2026). Adequate sleep is important for learners' well-being and cognitive functioning (Gruber, 2021). Electronic media use has been associated with shorter sleep duration (Lund et al., 2021), while technology use may interfere with healthy adolescent sleep patterns (Rogers et al., 2021). In the Philippine context, internet use has also been associated with both positive and negative mental health outcomes among Filipino university learners (Abad Santos et al., 2023). Collectively, screen time, sleep duration, and physical activity are important factors related to the health and well-being of children and adolescents (Wong et al., 2021).

Academic achievement reflects learners' educational development and is influenced by factors such as self-regulation, self-efficacy, and family environment (de la Fuente et al., 2021). Lifestyle behaviors may also be relevant, as screen time, sleep, and physical activity have been associated with academic achievement among adolescents (Marciano and Camerini, 2021). Physical fitness may support concentration, thinking, and overall well-being (Visier-Alfonso et al., 2022). Maintaining an appropriate balance among physical activity, sedentary behavior, and sleep is likewise important for health and well-being (Ferguson et al., 2021). Excessive screen exposure, particularly before bedtime, may contribute to poorer sleep, fatigue, reduced focus, and lower physical activity (Bourke et al., 2026). Consequently, balanced digital habits, healthy sleep practices, and active lifestyles may support physical fitness, health, and academic functioning (Zhao et al., 2024; Hossian et al., 2025). The World Health Organization (2022) similarly emphasizes physical activity, adequate rest, and healthy daily habits in supporting the health and well-being of children and adolescents.

The growing integration of technology into learners' routines creates a need to understand how screen use and sleep relate to physical fitness. Maintaining a healthy balance among physical activity, screen-related sedentary behavior, and sleep is associated with better physical, psychological, and educational outcomes among children and adolescents (Willhite et al., 2023). Within this context, the study examines Grade 9 learners at Cangawa National High School, Buenavista II District, Division of Bohol, during School Year 2026–2027. It considers screen time according to purpose and duration of gadget use, sleep quality according to sleep duration, patterns, and disturbances, and physical fitness according to endurance, strength, and flexibility. It also examines physical fitness in relation to academic achievement to provide a basis for a course of action promoting healthier learner behaviors.

The study is anchored in the 24-Hour Movement Behavior Framework, which considers physical activity, sedentary behavior, and sleep as interrelated behaviors within a 24-hour period. Increased screen-related sedentary behavior may reduce time for physical activity and sleep, while poor sleep may affect recovery, energy, and participation in physical activity. The framework therefore supports examining screen time, sleep quality, and physical fitness together (Tremblay et al., 2016). The Sleep Health Theory conceptualizes sleep through dimensions including satisfaction, alertness, timing, efficiency, and duration. Excessive screen exposure before bedtime may interfere with these dimensions, while poor sleep may reduce energy, recovery, and participation in physical activities (Buysse, 2014). The Biopsychosocial Model further explains health through interactions among biological, psychological, and social factors. Screen use and sleep may influence physical activity and bodily functioning while interacting with concentration, self-regulation, family, peers, school, and technology-related environments (Engel, 1977). The study also draws on Self-Determination Theory, which emphasizes autonomy, competence, and relatedness in supporting motivation and sustained behavior. Within the study, learners' ability to regulate screen use, maintain adequate sleep, and participate in physical activity provides a motivational perspective for understanding healthy lifestyle behaviors and their potential relationship with physical fitness and academic functioning (Ryan & Deci, 2000).

The study is supported by Philippine policies promoting learners' holistic development and physical well-being. Department of Education (DepEd) Order No. 15, s. 2026 emphasizes learner-centered assessment and the physical, cognitive, emotional, and social dimensions of development. Department of Education (DepEd) Order No. 34, s. 2019 provides standardized guidance for physical fitness assessment, including cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition. Republic Act No. 10533, the Enhanced Basic Education Act of 2013, promotes learner-centered education and holistic development. The 1987 Philippine Constitution likewise recognizes the promotion of health and physical education. Republic Act No. 11036 further supports mental health and well-being through programs in schools and communities (Republic of the Philippines, 2018). Despite existing evidence linking screen exposure, sleep, physical activity, well-being, and educational functioning, these behaviors interact within learners' daily routines. The study therefore examines the influence of screen time management and sleep quality on the physical fitness of Grade 9 learners at Cangawa National High School and the relationship between physical fitness and academic achievement. Its findings are intended to provide a basis for a course of action addressing healthy screen use, adequate sleep, physical fitness, and learner well-being.

The study aligns with SDG 3 – Good Health and Well-Being because it addresses sleep quality, physical fitness, physical activity, and healthy screen behaviors among adolescents. It also relates to SDG 4 – Quality Education because the study considers learners' physical well-being alongside academic achievement and educational functioning. These areas reflect the study's emphasis on supporting the holistic development of Grade 9 learners. The study contributes to public health, educational, community, and institutional sustainability by examining behaviors that may affect learners' physical health, well-being, and educational functioning. Its findings may

assist education policymakers and school administrators in strengthening health and wellness initiatives, guide teachers in promoting healthier learner habits, help parents and guardians manage screen and sleep routines at home, and increase learners' awareness of balanced technology use, adequate sleep, and physical activity. By connecting digital behavior, sleep health, physical fitness, and academic achievement, the study provides a multidisciplinary perspective that may support sustainable school and family practices for adolescent health and development.

2. Material and methods

2.1 Research Design

The study used a quantitative descriptive-correlational research design to describe the screen time and sleep quality of Grade 9 learners and determine their relationships with physical fitness and academic achievement. This design was appropriate because it examined the possible relationships and influence among the variables without manipulation. The research process began with the identification of the problem and review of related literature, followed by the preparation and administration of an adapted and modified questionnaire. Relevant information included teachers' age, sex, civil status, educational attainment, teaching position, teaching experience, and trainings attended; learners' age and sex; and data on screen time, sleep quality, physical fitness, and academic achievement. Physical fitness was assessed through tests of endurance, strength, and flexibility. The collected data were tallied, organized, statistically analyzed, and interpreted. The findings served as the basis for a Health and Wellness Enhancement Program focusing on screen time management, sleep quality improvement, physical fitness development, and academic support.

2.2 Locale of the Study

The study was conducted at Cangawa National High School in Buenavista II District, Division of Bohol. Established in 1978, the school serves learners from Cangawa and nearby barangays and offers Junior High School programs, including the Special Program for the Arts and Special Science Class, as well as Senior High School programs. The institution is supported by administrators, teachers, non-teaching personnel, and essential learning facilities such as classrooms, a library, and a canteen. Its location within Bohol and accessibility to learners provided the educational setting for the conduct of the study.

2.3 Respondents of the Study

The respondents consisted of 40 Grade 9 learners enrolled at Cangawa National High School during School Year 2026–2027 and seven MAPEH major teachers employed at the same institution, for a total of 47 respondents. The Grade 9 learners provided information relevant to their screen time, sleep quality, physical fitness, and academic achievement, while the MAPEH teachers contributed professional observations related to the study variables. Combining learner experiences with teacher perspectives provided information relevant to understanding the lifestyle and educational factors examined in the study.

2.4 Sample and Sampling Procedure

The study utilized simple random sampling to provide Grade 9 learners and teachers an equal chance of being selected, thereby promoting fairness and reducing selection bias. The final group consisted of 40 Grade 9 learners and seven MAPEH major teachers from Cangawa National High School. The inclusion of the MAPEH teachers provided professional perspectives within the specific educational context of the study.

2.5 Research Instrument

The primary research instrument was an adapted and modified questionnaire designed to collect quantitative information on screen time and sleep quality. It gathered demographic information and assessed screen time according to the purpose, duration, and frequency of gadget use for recreational and non-recreational activities. Sleep quality was assessed in terms of sleep duration, sleep patterns, and sleep disturbances. The questionnaire items were adapted from the study of Nizel Sherlyn N. Narsico and Geofeleen B. Flores of Jagobiao National High School, Mandaue City, Cebu, City entitled “Screentime Activity and Academic Productivity of Students “ and modified to correspond with the objectives and context of the present research. The instrument was subjected to expert validation for content, relevance, clarity, and accuracy, with revisions based on the recommendations received. A Likert scale was used to quantify responses and facilitate statistical analysis. Physical fitness was assessed through three standardized health-related physical fitness tests. Cardiorespiratory endurance was measured using the 3-minute step test, muscular strength through the right angle push-up, and flexibility through the Zipper Test. Results were converted into a five-point scale and interpreted from Excellent to Poor. Academic achievement was assessed using scores obtained from Summative Test 1 during the First Term in Physical Education and Health and interpreted according to the prescribed grading standards. For screen time, mean scores from 4.21–5.00, 3.41–4.20, 2.61–3.40, 1.81–2.60, and 1.00–1.80 represented progressively lower levels or frequencies of gadget use. The same ranges were applied to sleep duration and sleep patterns and disturbances using frequency-based interpretations. Physical fitness scores were interpreted as Excellent for 4.50–5.00, Good

for 3.50–4.49, Average for 2.50–3.49, Below-average for 1.50–2.49, and Poor for 1.00–1.49. These criteria were applied to cardiorespiratory endurance, muscular strength, flexibility, and overall physical fitness.

2.6 Data Gathering Procedure

The researcher first secured permission from the principal of Cangawa National High School and coordinated with the Grade 9 advisers. After obtaining approval, the questionnaires were distributed to the selected respondents. Before administration, the learners were informed about the purpose of the study, instructed on how to answer the questionnaire, and assured that their responses would remain confidential and would be used solely for research purposes. Completed questionnaires were collected, checked for completeness, and organized for analysis. Physical fitness assessments were conducted after securing permission and coordinating with the concerned teachers. Respondents were oriented regarding the purpose, procedures, safety precautions, and proper execution of the tests. Instructions and demonstrations were provided before the assessment of endurance, muscular strength, and flexibility. Individual performances were observed, measured, recorded, tabulated, and analyzed according to the prescribed scoring procedures. Academic achievement data were obtained from the official results of Summative Test 1 administered during the First Term in Physical Education, with permission and coordination from the concerned teacher and school authorities. The scores were recorded, organized, and interpreted using the prescribed academic achievement criteria and subsequently examined in relation to physical fitness. Confidentiality of learners' academic records was maintained throughout the process. All collected data were then tallied, encoded, and subjected to statistical analysis.

2.7 Data Analysis Techniques

The collected data were analyzed using frequency, simple percentage analysis, weighted mean, standard deviation, general average, and Spearman's rank correlation coefficient (Spearman's rho). Frequency and percentage were used to describe respondent characteristics, responses, and performance distributions. Weighted mean was used to determine the levels of screen time, sleep quality, and physical fitness, while standard deviation described the variability or consistency of responses. General average was used to determine the overall levels of screen time, sleep quality, physical fitness, and academic achievement. Spearman's rank correlation coefficient (Spearman's rho) was used to determine the significant relationships between screen time and physical fitness and between sleep quality and physical fitness. Questionnaire responses were assigned numerical values and averaged to determine the corresponding level of each variable based on the prescribed interpretation criteria.

3. Results and Discussion

3.1 Profile of the Respondents

3.1.1 Teachers' Demographic Profile

Among the seven MAPEH teachers, three (42.86%) were 20–30 years old, two (28.57%) were 31–40, and two (28.57%) were 41–50. Six (85.71%) were female and one (14.29%) was male, while four (57.14%) were married and three (42.86%) were single. Four (57.14%) held bachelor's degrees, while the remaining teachers had varying levels of master's education. Teaching experience ranged from less than one year to 21 years and above, with the largest groups having 1–5 and 6–10 years of experience at 28.57% each. All teachers had participated in professional development beyond the school level, primarily at the division level (42.86%).

The profile indicates a combination of early-career and experienced MAPEH teachers with varied academic and professional backgrounds. Their participation in professional development may support their knowledge and instructional practices. UNESCO (2024) emphasizes continuing professional learning and leadership development as important components of strengthening educational practice. Age, however, served only as a demographic characteristic and was not treated as an outcome variable (Fraenkel et al., 2023).

3.1.2 Learners' Demographic Profile

Among the 40 Grade 9 learners, 39 (97.50%) were 14–15 years old and one (2.50%) was 13 years old or below. No learner was aged 16 or above. In terms of gender, 31 (77.50%) were female and nine (22.50%) were male, indicating that the learner group was predominantly female.

The limited age variation indicates a relatively homogeneous developmental group. Adolescence is associated with increased engagement with digital technologies, making screen behavior particularly relevant to this population. Nagata et al. (2022) reported that recreational screen use is common among adolescents and emphasized monitoring screen exposure during this developmental period. Digital-media patterns may vary across adolescents according to the type, purpose, and context of screen use (Nagata et al., 2022).

3.2 Screen Time Management

3.2.1 Teachers' Recreational and Non-Recreational Screen Use

Teachers demonstrated a low level of recreational screen use, with a composite mean of 2.43 (SD = 0.63). Watching non-educational videos received the highest mean of 3.00, while online gaming had the lowest mean of 1.86. In contrast, non-recreational screen use was high, with a composite mean of 4.20 (SD = 0.48). Using technological devices for academic-related tasks received the highest mean of 4.43, while using gadgets for

educational and useful purposes obtained the lowest mean of 4.00. These findings indicate that teachers use digital technology primarily for professional and educational activities rather than recreation. This is consistent with Trust and Whalen (2021), who highlighted the integration of technology into teachers' instructional preparation, communication, collaboration, and other professional responsibilities. Moorhouse (2023) similarly found that teachers continued using digital technologies in face-to-face classrooms after online teaching. Nevertheless, prolonged professional screen exposure may still have health implications, including digital eye strain (Kaur et al., 2022), while Pondang (2026) reported technostress associated with digitally mediated work demands among secondary school teachers in the Philippines.

3.2.2 Teachers' Duration of Daily Gadget Use

Teachers obtained a composite mean of 2.49 (SD = 0.87) for daily gadget-use duration, interpreted as Rarely. Continuing gadget use after completing schoolwork had the highest mean of 3.14, interpreted as Sometimes, whereas using gadgets continuously from morning until bedtime had the lowest mean of 1.57, interpreted as Never. When purpose and duration were combined, teachers obtained an overall composite mean of 2.91 (SD = 0.72), interpreted as Moderate. The findings suggest that teachers use technology regularly when needed but generally avoid prolonged and uninterrupted exposure. Their extended gadget use after schoolwork may reflect communication, information access, or professional responsibilities (Moorhouse, 2023; UNESCO, 2023). Limiting uninterrupted sedentary screen time is consistent with recommendations encouraging regular movement (WHO, 2020; American College of Sports Medicine, 2022). Perez (2023) likewise highlighted the relevance of examining both the extent and duration of teachers' virtual-tool use.

3.2.3 Learners' Recreational and Non-Recreational Screen Use

Learners demonstrated moderate recreational screen use, with a composite mean of 3.13 (SD = 0.74). Watching non-educational videos and using social media received the highest means of 3.38, while online gaming and watching movies each obtained 2.95. Non-recreational screen use was high, with a composite mean of 3.96 (SD = 0.82). Reading useful academic works through gadgets received the highest mean of 4.13, while spending more time on gadgets for educational and useful purposes had the lowest mean of 3.78. These results indicate that digital devices serve both recreational and academic functions among learners. Recreational digital-media use is common in adolescence (Nagata et al., 2022), while digital technologies also provide important means of accessing educational materials and completing academic activities (Dong et al., 2021). However, screen-based sedentary behavior must be considered alongside physical activity and sleep because these behaviors collectively occupy learners' daily time (Saunders et al., 2022; Zhao et al., 2024). Sánchez-Miguel et al. (2022) also found that higher overall screen time was associated with less favorable health-related behaviors and academic performance.

3.2.4 Learners' Duration of Daily Gadget Use

The duration of learners' daily gadget use obtained a composite mean of 3.31 (SD = 0.98), interpreted as Sometimes. Continuing gadget use after completing schoolwork received the highest mean of 3.93, interpreted as Often, while using gadgets continuously from morning until bedtime received the lowest mean of 2.73, interpreted as Sometimes. Overall, the purpose of screen use obtained a mean of 3.55 (SD = 0.78), while the combined screen-use measure produced a composite mean of 3.43 (SD = 0.88), interpreted as High. The findings indicate that gadgets are established components of learners' daily routines, although extended use is not consistently reported. Prolonged screen exposure may displace physical activity and adequate sleep (World Health Organization [WHO], 2020; Hossian et al., 2025). Kontostoli et al. (2023) similarly found associations between adolescent screen behaviors, shorter sleep duration, and reduced physical activity, emphasizing the importance of balanced daily gadget use. Sánchez-Miguel et al. (2022) further supports the importance of considering screen-use patterns in relation to adolescent health behaviors.

3.3 Sleep Quality

3.3.1 Teachers' Sleep Duration

Teachers obtained a composite mean of 3.89 (SD = 1.11) for sleep duration, interpreted as Often. Maintaining enough sleep during school days and waking refreshed each received the highest mean of 4.00, while sleeping for at least eight hours nightly received the lowest mean of 3.71. The findings suggest generally adequate sleep duration despite some individual variation. Sufficient sleep supports cognitive performance, emotional well-being, and work productivity (Centers for Disease Control and Prevention, 2022). Adults are generally encouraged to obtain 7–9 hours of sleep per night (Sleep Foundation, 2023), while healthy sleep contributes to daytime functioning and physical well-being (World Health Organization, 2022).

3.3.2 Teachers' Sleep Patterns and Disturbances

Teachers obtained a composite mean of 3.14 (SD = 0.40) for sleep patterns and disturbances, interpreted as Sometimes. Maintaining consistent bedtime and waking schedules had the highest mean of 4.00, interpreted as Often, whereas difficulty falling asleep obtained the lowest mean of 2.57, interpreted as Rarely. Overall, sleep duration and sleep patterns produced a composite mean of 3.52 (SD = 0.76), interpreted as Often. The findings indicate generally favorable sleep practices with occasional disturbances. Consistent sleep timing contributes to

better sleep quality and daytime functioning (Centers for Disease Control and Prevention, 2022), whereas evening digital-device exposure may interfere with sleep onset (Bourke et al., 2026). Healthy sleep remains important for teachers' professional functioning (World Health Organization [WHO], 2022; American Academy of Sleep Medicine, 2021). Schmidt et al. (2023) found that sleep-focused interventions could improve teachers' sleep duration and quality, while Chen et al. (2023) associated sleep disturbance among teachers with greater burnout risk.

3.3.3 Learners' Sleep Duration

Learners obtained a composite mean of 3.71 (SD = 0.72) for sleep duration, interpreted as Often. Sleeping for at least eight hours nightly had the highest mean of 4.00, while maintaining enough sleep during school days had the lowest mean of 3.48, also interpreted as Often. The findings indicate generally sufficient sleep duration among learners, although maintaining sleep during school days may be more challenging. Adolescents are generally recommended to obtain 8–10 hours of sleep per night (Centers for Disease Control and Prevention, 2022). Evening screen exposure may delay bedtime and reduce sleep duration (Bourke et al., 2026), while adequate sleep supports physical functioning and recovery (World Health Organization [WHO], 2022). Healthy sleep may also support well-being and academic engagement (Centers for Disease Control and Prevention, 2022).

3.3.4 Learners' Sleep Patterns and Disturbances

Learners obtained a composite mean of 2.93 (SD = 0.68) for sleep patterns and disturbances, interpreted as Sometimes. Going to bed and waking at approximately the same time each day had the highest mean of 3.58, interpreted as Often, while difficulty returning to sleep after nighttime awakening had the lowest mean of 2.35, interpreted as Rarely. Combining sleep duration and sleep patterns resulted in a composite mean of 3.32 (SD = 0.70), interpreted as Sometimes. The results suggest that learners generally obtain adequate sleep duration but still experience occasional irregularities or disturbances. Regular sleep-wake schedules support healthy circadian rhythms (Centers for Disease Control and Prevention, 2022), while electronic-device use before bedtime may contribute to sleep disruption (Bourke et al., 2026). Sánchez-Miguel et al. (2022) similarly found less favorable sleep-related behaviors among adolescents with higher screen-time profiles, supporting the importance of responsible screen management alongside healthy sleep routines.

3.4 Physical Fitness of Grade 9 Learners

3.4.1 Cardiovascular Endurance

The learners obtained a general endurance score of 3, interpreted as Average. Sixteen learners (40.00%) demonstrated Excellent endurance, 13 (32.50%) were Poor, five (12.50%) were Below Average, four (10.00%) were Good, and two (5.00%) were Average. Although Excellent endurance represented the largest individual category, the substantial number of learners with Poor and Below Average performance reduced the overall result to Average. The variation may reflect differences in physical activity, sports participation, screen habits, and sleep quality (World Health Organization, 2020; American College of Sports Medicine, 2022; Zhao et al., 2024).

3.4.2 Muscular Strength

The learners obtained a general muscular-strength score of 1, interpreted as Poor. Twenty-nine learners (72.50%) were classified as Poor and eight (20.00%) as Below Average. Only two (5.00%) demonstrated Good strength and one (2.50%) demonstrated Excellent strength, while none were classified as Average. The findings indicate limited upper-body strength among most learners. Regular resistance exercise and activities that challenge the muscles are important for improving muscular strength (American College of Sports Medicine, 2022). Reduced physical activity associated with sedentary screen behavior and inadequate recovery associated with poor sleep may contribute to lower muscular performance, highlighting the importance of strength-promoting physical activities and healthy lifestyle behaviors (Department of Education, 2019).

3.4.3 Flexibility

The learners obtained a general flexibility score of 3, interpreted as Average. Eleven learners (27.50%) demonstrated Good flexibility and another 11 (27.50%) were Poor. Ten (25.00%) were Excellent, seven (17.50%) were Below Average, and one (2.50%) was Average. The wide distribution indicates substantial variation in flexibility despite an Average overall result. Flexibility may differ according to physical activity, exercise habits, movement patterns, and lifestyle behaviors. Regular stretching and physical activities promoting joint mobility and muscle elasticity can improve flexibility (American College of Sports Medicine, 2022).

3.4.4 Overall Physical Fitness

The overall physical fitness of the learners received a general score of 3, interpreted as Average. Seventeen learners (42.50%) were Below Average, 10 (25.00%) were Average, six (15.00%) were Poor, six (15.00%) were Good, and one (2.50%) was Excellent. The findings indicate that although the group's overall fitness was Average, a considerable proportion remained Below Average or Poor. Regular engagement in activities that improve cardiovascular endurance, strength, and flexibility is important for maintaining health-related fitness (American

College of Sports Medicine, 2022). The findings also highlight the importance of balanced screen use, sufficient sleep, and regular physical activity in supporting physical fitness (Department of Education, 2019).

3.5 Academic Achievement of Grade 9 Learners

The learners obtained a general academic achievement score of 18, interpreted as Proficient. Thirty-eight learners (95.00%) were classified as Proficient, while one (2.50%) was Approaching Proficiency and one (2.50%) was Developing. No learner was classified as Advanced or Beginning. The findings demonstrate that most learners met the expected competencies, although the two learners below Proficient may require additional support (United Nations Educational, Scientific and Cultural Organization, 2023). Academic achievement is influenced by interconnected factors such as cognitive abilities, motivation, learning environment, health behaviors, and study practices (Organization for Economic Co-operation and Development, 2023). Sleep also supports attention, memory, and learning (Centers for Disease Control and Prevention, 2022), while physical activity and fitness may contribute to cognitive and academic-related functioning (World Health Organization, 2022; He et al., 2025).

3.6 Relationship Between Physical Fitness and Academic Achievement

The Spearman Rank-Order Correlation analysis yielded a correlation coefficient of $(r_s = 0.027)$ and a p-value of 0.869. Because the p-value exceeded the 0.05 significance level, the null hypothesis was not rejected. Thus, no statistically significant relationship was found between physical fitness and academic achievement among the Grade 9 learners, and the positive correlation was negligible. The result indicates that differences in physical fitness were not associated with meaningful differences in academic achievement in this group. Although physical activity and fitness can support cognitive functioning and learning readiness (World Health Organization [WHO], 2022; Liu et al., 2025; He et al., 2025), academic performance is influenced by multiple factors, including motivation, learning environment, socioeconomic conditions, instructional practices, study habits, sleep quality, and individual characteristics (Organisation for Economic Co-operation and Development, 2023; United Nations Educational, Scientific and Cultural Organization, 2023). Therefore, the absence of a significant statistical relationship does not diminish the broader health value of physical activity, adequate sleep, and healthy screen practices (WHO, 2022; Hossian et al., 2025).

4. Conclusion & Recommendations

The study concluded that Grade 9 learners demonstrated varying screen time and sleep patterns, an overall Average level of physical fitness, and Proficient academic achievement. Endurance and flexibility showed satisfactory performance, while muscular strength was identified as an area needing improvement. Physical fitness had a very weak positive correlation with academic achievement ($r_s = 0.027$, $p = 0.869$), indicating no significant relationship between the two variables and suggesting that physical fitness alone does not directly determine academic performance.

The study recommends implementing the Health and Wellness Enhancement Program for Screen Time Management, Sleep Quality Improvement, Physical Fitness Development, and Academic Support during School Year 2026–2027. The program is intended to promote responsible and balanced screen use, healthy sleep practices, regular physical activity, improved endurance, strength, and flexibility, academic support, and collaboration among learners, teachers, parents, school administrators, and other stakeholders.

The study was limited to 40 Grade 9 learners of Cangawa National High School during School Year 2026–2027 and focused on screen time management, sleep quality, physical fitness, and academic achievement. Physical fitness assessment was limited to three health-related components endurance, muscular strength, and flexibility measured through the 3-Minute Step Test, Right-Angle Push-Up Test, and Zipper Test. Therefore, the findings reflect the respondents, variables, and measures included in the study.

5. Compliance with ethical standards

The author declares no conflict of interest. No external funding was reported for this study, and the researchers acknowledge the Grade 9 learners, MAPEH teachers, and Cangawa National High School for their participation and institutional support. Participation was voluntary, informed consent was obtained, and data were collected through non-invasive questionnaire and physical fitness assessment procedures while maintaining confidentiality and ensuring that no identifying information was disclosed.

REFERENCES

- Abad Santos, P. M. T., Cleofas, J. V., Austria, A. G. O., de Guzman, A. K. B., & Sarile, B. A. F. (2023). The double-edged impact of Internet use on mental health outcomes among Filipino university students: The mediating role of online social support. *Frontiers in Sociology*, 8, 1132523. <https://doi.org/10.3389/fsoc.2023.1132523>
- American Academy of Sleep Medicine. (2021). *Sleep is essential for health: Position statement*. <https://aasm.org/advocacy/position-statements/sleep-is-essential-to-health/>
- American College of Sports Medicine. (2022). *ACSM's guidelines for exercise testing and prescription* (11th ed.). Wolters Kluwer. <https://shop.lww.com/ACSM-s-Guidelines-for-Exercise-Testing-and-Prescription/p/9781975150198>
- Álvarez-Bueno, C., Cervero-Redondo, I., Lucas-de la Cruz, L., Notario-Pacheco, B., & Martínez-Vizcaíno, V. (2021). Academic achievement and physical activity: A systematic review and meta-analysis. *Journal of Sport and Health Science*, 10(2), 145–155. <https://doi.org/10.1016/j.jshs.2020.01.002>
- Bourke, M., Maddren, C. I., Sippel, F., & Thomas, G. (2026). Within-person association between daily screen use and sleep in youth: A systematic review and meta-analysis. *JAMA Pediatrics*, 180(5), 500–509. <https://doi.org/10.1001/jamapediatrics.2025.6490>
- Buysse, D. J. (2014). Sleep health: Can we define it? Does it matter? *Sleep*, 37(1), 9–17. <https://doi.org/10.5665/sleep.3298>
- Centers for Disease Control and Prevention. (2022). *Sleep and sleep disorders*. <https://www.cdc.gov/sleep/>
- da Costa, B. G. G., Chaput, J.-P., Lopes, M. V. V., Malheiros, L. E. A., da Silva, I. C. M., & Silva, K. S. (2021). Association between screen time and accelerometer-measured 24-h movement behaviors in a sample of Brazilian adolescents. *Public Health*, 195, 32–38. <https://doi.org/10.1016/j.puhe.2021.03.029>
- de la Fuente, J., Malpica-Chavarria, E. A., Garzón-Umerenkova, A., & Pachón-Basallo, M. (2021). Effect of personal and contextual factors of regulation on academic achievement during adolescence: The role of gender and age. *International Journal of Environmental Research and Public Health*, 18(17), 8944. <https://doi.org/10.3390/ijerph18178944>
- Department of Education. (2019). *DepEd Order No. 034, s. 2019: Revised Physical Fitness Test Manual*. https://www.deped.gov.ph/wp-content/uploads/2019/12/DO_s2019_034.pdf
- Department of Education. (2026). *DepEd Order No. 15, s. 2026: Revised guidelines on classroom assessment, grading system, and awards and recognition for the K to 12 Basic Education Program*. <https://www.deped.gov.ph/>
- Dong, X., Ding, L., Zhang, R., Ding, M., Wang, B., & Yi, X. (2021). Physical activity, screen-based sedentary behavior and physical fitness in Chinese adolescents: A cross-sectional study. *Frontiers in Pediatrics*, 9, 722079. <https://doi.org/10.3389/fped.2021.722079>
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196(4286), 129–136. <https://doi.org/10.1126/science.847460>
- Ferguson, T., Curtis, R., Frayse, F., Northcott, C., Virgara, R., Watson, A., & Maher, C. A. (2021). Annual, seasonal, cultural and vacation patterns in sleep, sedentary behaviour and physical activity: A systematic review and meta-analysis. *BMC Public Health*, 21, 1384. <https://doi.org/10.1186/s12889-021-11298-3>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2023). *How to design and evaluate research in education* (11th ed.). McGraw Hill.
- Gruber, R., Carrey, N., Weiss, S. K., Frappier, J.-Y., & Rourke, L. (2021). Short sleep duration is associated with poor academic performance and emotional problems in children and adolescents. *Sleep Health*, 7(4), 430–437. <https://doi.org/10.1016/j.sleh.2021.03.006>
- He, H., Yang, Y., Sun, J., Wang, F., Zhang, W., & Zhu, F. (2025). Effects of school-based physical activity on academic achievement in children and adolescents: A systematic review and meta-analysis. *Frontiers in Public Health*, 13, 1651883. <https://doi.org/10.3389/fpubh.2025.1651883>
- Hjetland, G. J., Skogen, J. C., Hysing, M., & Sivertsen, B. (2021). The association between self-reported screen time, social media addiction, and sleep among Norwegian university students. *Frontiers in Public Health*, 9, 794307. <https://doi.org/10.3389/fpubh.2021.794307>
- Hossian, M., Mielke, G. I., Nisar, M., Tremblay, M. S., & Khan, A. (2025). Global research on 24-hour movement behaviours guidelines in children and adolescents: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, 22, 108. <https://doi.org/10.1186/s12966-025-01809-5>

- Kaur, K., Gurnani, B., Nayak, S., Deori, N., Kaur, S., Jethani, J., & Singh, D. (2022). Digital eye strain—A comprehensive review. *Ophthalmology and Therapy*, 11, 1655–1680. <https://doi.org/10.1007/s40123-022-00540-9>
- Kontostoli, E., Jones, A. P., Pearson, N., Foley, L., Biddle, S. J. H., & Atkin, A. J. (2023). The association of contemporary screen behaviours with physical activity, sedentary behaviour and sleep in adolescents: A cross-sectional analysis of the Millennium Cohort Study. *International Journal of Behavioral Medicine*, 30, 122–132. <https://doi.org/10.1007/s12529-022-10077-7>
- Liu, B., Shi, P., Jin, T., & Feng, X. (2025). Associations between meeting 24h movement behavior guidelines and cognition, gray matter volume, and academic performance in children and adolescents: A systematic review. *Archives of Public Health*, 83, 10. <https://doi.org/10.1186/s13690-024-01493-0>
- Lund, L., Sølvsø, I. N., Danielsen, D., & Andersen, S. (2021). Electronic media use and sleep in children and adolescents in western countries: A systematic review. *BMC Public Health*, 21, 1598. <https://doi.org/10.1186/s12889-021-11640-9>
- Marciano, L., & Camerini, A.-L. (2021). Recommendations on screen time, sleep and physical activity: Associations with academic achievement in Swiss adolescents. *Public Health*, 198, 211–217. <https://doi.org/10.1016/j.puhe.2021.07.027>
- Moorhouse, B. L. (2023). Teachers' digital technology use after a period of online teaching. *ELT Journal*, 77(4), 445–457. <https://doi.org/10.1093/elt/ccac050>
- Nagata, J. M., Cortez, C. A., Cattle, C. J., Ganson, K. T., Iyer, P., Bibbins-Domingo, K., & Baker, F. C. (2022). Screen time use among US adolescents during the COVID-19 pandemic: Findings from the Adolescent Brain Cognitive Development Study. *JAMA Pediatrics*, 176(1), 94–96. <https://doi.org/10.1001/jamapediatrics.2021.4336>
- Nakshine, V. S., Thute, P., Khatib, M. N., & Deshmukh, R. S. (2022). Increased screen time as a cause of declining physical, psychological health, and sleep patterns: A literature review. *Cureus*, 14(10), e30051. <https://doi.org/10.7759/cureus.30051>
- Narsico, N. S. N., & Flores, G. B. (2023). Screen time activity and academic productivity of students. *Asian Education*, 2023, Article 2. <https://www.lynnp.org/index.php/ae/article/view/41>
- Organisation for Economic Co-operation and Development. (2021). *21st-century readers: Developing literacy skills in a digital world (PISA 2018 results)*. OECD Publishing. <https://doi.org/10.1787/a83d84cb-en>
- Organisation for Economic Co-operation and Development. (2023). *PISA 2022 results (Volume I): The state of learning and equity in education*. OECD Publishing. <https://doi.org/10.1787/53f23881-en>
- Perez, E. G. (2023). Effects of virtual tools in teaching: The case of Commonwealth High School, Quezon City, Philippines. *AIDE Interdisciplinary Research Journal*, 2(1), 109–123. <https://doi.org/10.56648/aide-irj.v2i1.23>
- Pondang, K. A. (2026). Teaching amidst digital noise: A phenomenological study of technostress in Philippine secondary schools. *Journal of Interdisciplinary Perspectives*, 4(6).
- Republic of the Philippines. (1987). *The 1987 Constitution of the Republic of the Philippines*. Official Gazette. <https://www.officialgazette.gov.ph/constitutions/1987-constitution/>
- Republic of the Philippines. (2013). *Republic Act No. 10533: Enhanced Basic Education Act of 2013*. Official Gazette. <https://www.officialgazette.gov.ph/2013/05/15/republic-act-no-10533/>
- Republic of the Philippines. (2018). *Republic Act No. 11036: Mental Health Act*. Official Gazette. <https://www.officialgazette.gov.ph/2018/06/20/republic-act-no-11036/>
- Rogers, C. E., Moore, N. R. M., Francis, J. F., Oram, E. L. O., & colleagues. (2021). A longitudinal investigation of sleep and technology use in early adolescence: Does parental control of technology use protect adolescent sleep? *Sleep Medicine*, 84, 368. <https://doi.org/10.1016/j.sleep.2021.06.003>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Sampasa-Kanyinga, H., Lien, A., Hamilton, H. A., & Chaput, J.-P. (2022). Canadian 24-h movement guidelines, life stress, and self-esteem among adolescents. *Frontiers in Public Health*, 10, 702162. <https://doi.org/10.3389/fpubh.2022.702162>
- Sánchez-Miguel, P. A., Sevil-Serrano, J., Sánchez-Oliva, D., & Tapia-Serrano, M. A. (2022). School and non-school day screen time profiles and their differences in health and educational indicators in adolescents.

- Scandinavian Journal of Medicine & Science in Sports*, 32(11), 1668–1681.
<https://doi.org/10.1111/sms.14214>
- Saunders, T. J., McIsaac, T., Campbell, J., Douillette, K., Janssen, I., Tomasone, J. R., Ross-White, A., Prince, S. A., & Chaput, J.-P. (2022). Timing of sedentary behaviour and access to sedentary activities in the bedroom and their association with sleep quality and duration in children and youth: A systematic review. *Health Promotion and Chronic Disease Prevention in Canada*, 42(4), 139–149.
<https://doi.org/10.24095/hpcdp.42.4.03>
- Schmidt, L. I., Steenbock, L. M., & Sieverding, M. (2023). Improving sleep among teachers: An implementation-intention intervention. *International Journal of Behavioral Medicine*, 30(1), 49–61.
<https://doi.org/10.1007/s12529-022-10069-9>
- Sleep Foundation. (2023). *How much sleep do we really need?* <https://www.sleepfoundation.org/how-sleep-works/how-much-sleep-do-we-really-need>
- Tremblay, M. S., Carson, V., Chaput, J.-P., Connor Gorber, S., Dinh, T., Duggan, M., Faulkner, G., Gray, C. E., Gruber, R., Janson, K., Janssen, I., Katzmarzyk, P. T., Kho, M. E., Latimer-Cheung, A. E., LeBlanc, C., Okely, A. D., Olds, T., Pate, R. R., Phillips, A., . . . Zehr, L. (2016). Canadian 24-Hour Movement Guidelines for Children and Youth: An integration of physical activity, sedentary behaviour, and sleep. *Applied Physiology, Nutrition, and Metabolism*, 41(6 Suppl. 3), S311–S327. <https://doi.org/10.1139/apnm-2016-0151>
- Trust, T., & Whalen, J. (2021). Emergency remote teaching with technology during the COVID-19 pandemic: Using the whole teacher lens to examine educator technology use. *Educational Technology Research and Development*, 69, 189–197. <https://doi.org/10.1007/s11423-020-09926-7>
- UNESCO. (2023). *Global education monitoring report 2023: Technology in education—A tool on whose terms?* <https://www.unesco.org/gem-report/en/technology>
- UNESCO. (2024). *Global education monitoring report 2024/5: Leadership in education—Lead for learning.* <https://www.unesco.org/gem-report/en/leadership>
- Visier-Alfonso, M. E., Sánchez-López, M., Álvarez-Bueno, C., Ruiz-Hermosa, A., Nieto-López, M., & Martínez-Vizcaino, V. (2022). Mediators between physical activity and academic achievement: A systematic review. *Scandinavian Journal of Medicine & Science in Sports*, 32(3), 452–464.
<https://doi.org/10.1111/sms.14107>
- Wilhite, K., Booker, B., Huang, B.-H., Antczak, D., Corbett, L., Parker, P., Noetel, M., Rissel, C., Lonsdale, C., Del Pozo Cruz, B., & Sanders, T. (2023). Combinations of physical activity, sedentary behavior, and sleep duration and their associations with physical, psychological, and educational outcomes in children and adolescents: A systematic review. *American Journal of Epidemiology*, 192(4), 665–679.
<https://doi.org/10.1093/aje/kwac212>
- Wong, C. K. H., Wong, R. S., Cheung, J. P. Y., Tung, K. T. S., Yam, J. C. S., Rich, M., Fu, K.-W., Cheung, P. W. H., Luo, N., Au, C. H., Zhang, A., Wong, W. H. S., Fan, J., Lam, C. L. K., & Ip, P. (2021). Impact of sleep duration, physical activity, and screen time on health-related quality of life in children and adolescents. *Health and Quality of Life Outcomes*, 19, 145. <https://doi.org/10.1186/s12955-021-01776-y>
- World Health Organization. (2020). *WHO guidelines on physical activity and sedentary behaviour.* <https://www.who.int/publications/i/item/9789240015128>
- World Health Organization. (2022). *Global status report on physical activity 2022.* <https://www.who.int/publications/i/item/9789240059153>
- Yang, Z., Wang, D., Fan, Y., Ma, Z., Chen, X., Zhang, Y., & Fan, F. (2023). Relationship between sleep disturbance and burnout among Chinese urban teachers: Moderating roles of resilience. *Sleep Medicine*, 108, 29–37. <https://doi.org/10.1016/j.sleep.2023.06.002>
- Zhao, H., Wu, N., Haapala, E. A., & Gao, Y. (2024). Association between meeting 24-h movement guidelines and health in children and adolescents aged 5–17 years: A systematic review and meta-analysis. *Frontiers in Public Health*, 12, 1351972. <https://doi.org/10.3389/fpubh.2024.1351972>