Pro Index | Journal of Research in Innovative Teaching and Inclusive Learning
Volume: 4 Issue: 2 Year:2026
ISSN:3030-3036|http://journals.proindex.uz

Teachers' Supervisory Strategies in Managing Students' Online Gaming Habits and their Relationship to Academic Performance

Jeneliza L. Heducos, MAEd
Graduate Student, Colegio de Santa Rita de San Carlos, Inc.

Mark Joseph Q. Espia, PhD
Graduate School Instructor, Colegio de Santa Rita de San Carlos, Inc.

Abstract: This study focused on the supervisory strategies employed by Junior and Senior High School teachers at Quezon National High School and how these strategies correlate with students' tendencies to play online games and their academic performance. The study used a quantitative, descriptive-correlational approach and sampled 80 teachers. Data were collected using a validated survey designed by the researcher which assessed teachers' supervisory strategies in the three areas of classroom management, motivational strategies, and support mechanisms, and their observation of students' online gaming behaviors across the dimensions of frequency, intensity, and demonstrations of gaming behavior. The academic performance of students was evaluated based on the average of the second-quarter grades of the 2025-2026 School Year. The findings showed that teachers viewed their supervisory strategies to be effective with mean ratings in the "Strongly Agree" category except for the counseling and support mechanisms, which rated more neutrally. Teachers reported incidents of problematic online gaming behaviors exhibited by students that caused severe negative behavioral manifestations in the classroom, such as drowsiness, failure to meet deadlines, and lack of attention. Academic performance was rated "Satisfactory" across all the assessed grade levels (overall M=83.23), which means that there was no grade in that range exceeded that category and that there was a need to do better systematically. Despite large sizes, which typically indicate meaningful relationships, the correlation analysis for gaming behavior and academic performance (r= -.622) and supervisory strategies and academic performance (r= -.657) were not statistically significant ($p > .05$) in either case. Based on the findings, a Digital Supervision Plan anchored in the Transformational Leadership, Self-Regulated Learning, and Self-Determination theories is proposed to foster positive digital habits, improve self-regulation, and subsequently enhance academic performance within the school community.

Keywords: Teachers' Supervisory Strategies, Online Gaming Habits, Academic Performance, Administration in Education, San Carlos City, Philippines, Quantitative.

CHAPTER 1

INTRODUCTION

Background of the Study

The rapid development of digital technology has enabled online gaming to become one of the most common pastimes for students and has created varying relationships with students' academic performance. While moderate gaming can help players develop some skills and relieve some stress, excessive gaming has a proven track record of having students' study less, concentrate less, and achieve lower academic results (Satrial et al., 2023; Chen & Qu, 2023). The phenomenon of online gaming is worldwide and apparent among students throughout the world, including students in

South Korea and India, where online gaming and Internet Gaming Disorder have been shown to be correlated with lower academic achievement (Jain et al., Ko et al., 2024).

Concerns like those discussed above in the context of the ASEAN region are a cause for great concern and suggest the need for culturally appropriate responses. Studies in Singapore have shown that gaming disorders and gaming addiction are serious public health issues that affect students (Chew et al., 2025), while studies in Thailand have shown that mobile game addiction is a direct predictor of poor academic performance (Khumsuk et al., 2023). These studies show that the problems of students are because of online gaming are a worldwide problem, and that it is the responsibility of teachers to find appropriate solutions to these problems.

In the context of the Philippines, research has shown the serious dangers of problem gaming. Problematic gaming is associated with mental health issues and hinders learning (Pineda et al., 2023). Although the focus is often on labeling specific students' behaviors and legitimating evaluation instruments (Mordeno et al., 2023), there is a definitive absence of analysis on the effect of gaming addiction on student learning individual school policies and the everyday oversight strategies deployed by Junior High Schook teachers to manage Junior High School teacher's gaming addiction operationalize their school policies. There is a broad understanding, even among teachers, of the gaming and its consequent effect on the students' schoolwork; however, there is little understanding of it every day.

There is limited research on what teachers do to curb gaming behaviors, even though the importance of teachers in helping shape student behaviors and the detrimental impact of online gaming on students' academic performance are widely acknowledged. Most studies have focused on the general impact of online gaming. Very few studies document the deliberate and specific classroom strategies employed by Junior and Senior High School teachers, especially in the context of Quezon National High School.

The purpose of this study is to examine the gap in the supervisory strategies employed by teachers at Quezon National High School in managing students' behavioral issues pertaining to online gaming and their associated academic performance. The result would guide the author to develop an intervention plan on digital supervision that is sustained by the findings and would aid in the revision of the school's Student Discipline and Academic Policy. This study is designed to assist students in the attainment of desirable academic goals, foster the development of digital discipline, and provide recommendations to other schools in Region VI and comparable situations.

REVIEW OF RELATED LITERATURE AND STUDIES

This section focuses on national and global literature and empirical studies on teachers' supervisory strategies and students' online gaming habits and their relationship with academic performance. This review seeks to construct a theoretical foundation and establish the gap that this study intends to fill.

Teachers' Supervisory Strategies

In teaching, supervisory strategies involve a wide range of proactive and reactive strategies to manage and guide students' online gaming habits and other digital behaviors in the classrooms. Instructional supervision that combines preemptive and proactive skill-building interventions beyond punitive and monitoring focuses on developing students' regulation, digital citizenship, and well-being (Sun, 2023). These supervisory strategies can be examined more comprehensively by integrating the three interrelated areas of classroom management, motivation, and support.

Classroom Management

The Supervision of students in a classroom in a digital world is more effective when a set of rules and guidelines is established, and students are encouraged to use their time constructively (time management). A blended approach includes some teaching and monitoring, is more effective than a rigid system aimed at pure control (Weinstein, 2023). The insights from the Global South, especially from the Philippines, are contextualized when enabling systemic support is provided.

Support from the administration created a favorable environment in which teachers can use their structural frameworks (De Vela, 2022). Moreover, teachers' increased confidence and competence in managing technology disruption in the classroom (Moliner, 2023) is a result of balanced professional training and support in digital pedagogy.

Motivational Strategies

Students' intrinsic motivations must be incorporated into the supervisory techniques to promote voluntary changes in the importance of academic goals. Digital games have been shown to fulfill psychological needs for autonomy, competency and relatedness; therefore, the pursuit of students' academic goals should be made as need-satisfying as possible (Li et al., 2024). One example of this is called "gameful integration" which involves the use of gaming elements, such as points and badges, in lesson design to shift learners' focus from the lesson to motivation for engagement with the curriculum (Zheng, 2023). Teachers in this region who have incorporated positive reinforcement, recognition, and mentoring have been said to have students who are more attentive and on task (Esterling, 2021). Mentoring programs of this type have been shown to reduce absenteeism and to improve task completion in students who have been identified as regular gamers (Department of Education, 2023).

Support Mechanisms

A comprehensive operational framework of all levels of supervision must include operational elements. Most of the international literature addresses these operational elements in terms of a multi-layered approach, including elements such as counseling for the psychological dimensions and the active influence of parents in the structural and disciplinary relationships in the dual roles of supervisor and observer, etc. (Lee & Shin, 2023). In Alzahrani and Griffiths' (2024) study, the authors argue that proactive and constructive interventions in the skills of time management and IT are necessary to combat academic decline which is aggravated by these elements. Pineda et al., (2023) are the only researchers in the Philippines that have systematized the school formal support systems, particularly counseling, academic coaching, and time management control, for at-risk school children. The effectiveness of cooperation is evident in the studies of teacher-gathered-parent meetings, which improve the cooperation of the home and school systems (University of the Philippines, 2024). The supervisory practices of the three components were integrated. The three elements are coaching for constructive change, implementation of motivational practices to engage the inner drive of the learner, and support mechanisms to provide a safety net. The literature, both local and foreign, suggests that the most effective supervision is a flexible combination of both control and supervision and a combination of system and structural elements of the supervision and individualized support mechanisms.

Online Gaming Habits

Students' online gaming behavior encompasses a range of activities that include complex and multi-dimensional behavior that, in addition to their primary function of entertainment, have a serious impact on the academic activities of the students, particularly in relation to the frequency, intensity, and behavioral manifestations that these activities represent.

Frequency of gaming

Gaming's impact depends on both how often gaming occurs and when gaming occurs. Studies conducted internationally show how high-frequency gaming, when gaming occurs frequently on weekdays, is associated with time displacement from studying and a decline in grades (Mahmud et al., 2023). Gaming at night is a particular risk factor that predicts fatigue, low concentration, and low levels of clear focus the next day (Faílde Garrido et al., 2024). In the Philippines, daily gaming was associated with a greater likelihood of having symptoms consistent with Internet Gaming Disorder (Mordeno et al., 2023). It is normalized gaming in daily life that the National Youth Commission (2023) reports that most high school students in the country habitually play video games (re)creating a normal part of their leisure and study time.

Intensity of Gaming

The absorption experience distracts from the formation of an academic identity. The cognitive resources required for learning are depleted due to the immersive nature of gaming. This explains the link between extended gaming sessions and negative academic outcomes and attention deficits; immersive gaming depletes the cognitive resources needed for learning (Jain et al., 2021). Increased gaming is known to reduce engagement in class and magnify ADHD symptoms (Ko et al., 2024). In Southeast Asia, mobile gaming has overshadowed elements of academic engagement, and the intensity of gaming engagement is the strongest negative predictor of academic performance (Khumsuk et al., 2023). Studies from the region found that gaming-motivated students demonstrated lower levels of self-regulation, while gaming-motivated students displayed increased levels of self-regulation and increased irritability during school activities (Ateneo de Manila University, 2024).

Behavioral Manifestations in the classroom

The impact of gaming is observable among students in class. A systematic review identified sleepiness, missed deadlines, and irritability as gaming-related school issues (Satapathy et al., 2025). The cognitive focus caused by gaming is sufficient to reduce participation and concentration and cause gaming-related fatigue (Vázquez-Cano et al., 2023). Empirical research supports sleep disruptions from late gaming as a cause of decline in exam performance (De La Salle University, 2024). In the Philippines, gaming-related irritability and disengagement have been observed (Philippine Mental Health Association, 2023).

To summarize the habit's multidimensional nature, frequency anchors the habit, intensity shows competition reliance to the detriment of academics, and the behavioral indicators signal the habit's direct behavioral cost to the functioning of the classroom. This complexity requires a supervisor to develop an understanding of the habit to formulate effective strategies.

Academic Performance

The effect of online gaming on academic performance is a complex and multifaceted relationship defined by a person's behavior, skills, and surrounding resources.

General Academic Impact

The negative academic consequences of problematic gaming have been extensively documented. Globally, gaming addiction is linked to a decline in academic motivation, which is an essential component of the effort directed toward academics (Chen & Qu, 2023). While some educational games (Digital Game-Based Learning) may improve certain learning outcomes, an increase in recreational gaming is likely to lead to a reduction in study time, negatively impacting academic achievement (Ragni et al., 2023). Students in the Philippines with "Satisfactory" performance are reported to have a higher gaming frequency than those with higher performance ratings, indicating that gaming is a potential barrier (Department of Education, 2024). However, it is possible to obtain an equilibrium, as students who have a gaming interest and are academically successful tend to do so by implementing intentional and organized time management (University of San Carlos, 2023).

Moderating factors

Important moderators reduce or eliminate these negative effects. A student's ability to self-regulate is an important internal buffer, complemented by parental support (Satrial et al., 2023). Those who suffer from poor sleep can experience a greater mental burden; however, mentoring support from teachers can help offset the dip in motivation (Chew et al., 2025). Research from the Philippines supports these moderators. Digital wellness programs for schools in the Philippines have shown an increase in self-regulation and other academic metrics (University of the Philippines Diliman, 2024). Additionally, quality teacher support has proven to help students maintain an even level of academic resilience despite their level of gaming (Philippine Normal University, 2023).

Synthesis

Numerous studies reference problematic gaming practices and their negative impact on academics through the displacement of time, poor sleep, and concentration effects. Individual factors such as self-management and mental health, along with surrounding support systems (parental and teacher support) are said to have no impact on gaming practices and academic standing. Consequently, teacher supervisors need to reposition their supervisory practices beyond the use of simple compliance and control techniques to more sophisticated integrated and proactive techniques. Such techniques have proven to blend classroom behavior and motivation, along with providing the necessary support to develop skills and offer counseling. Gameful integration can transform negative gaming behaviors into positive academic focuses. Its positive effects are clear but must be implemented with support for students that are most at risk. While there is documented evidence of a flexible approach to supervision within the literature, there is a marked absence of robust evidence based, context specific, localized applications of this approach, such as at Quezon National High School (QNHS). The literature suggests the use of flexible approaches within the supervision of staff that incorporates elements of power, compassion, and teaching. However, such applications are often limited by the preparation of the staff, the operational framework of the organization, and the depth of understanding of the behavioral tendencies of the students at the local level. The research is an attempt to address the gap by examining the supervisory techniques employed by the teachers at QNHS, the relationship of these techniques to the online gaming behaviors of their students, and the effect of these behaviors on the students' school performance so that context-specific and effective supervisory techniques can be developed.

Theoretical Framework

This study is based on three theories that describe the complex relationships between teacher supervision, students' online gaming habits, and students' academic performance. While there are several theories for each aspect of leadership, teaching, and motivation, the three chosen for this study, Transformational Leadership Theory, Self-Regulated Theory, and Self-Determination Theory, each provide particularly good perspectives. With these three, it is possible to interrogate the strategic role of a teacher, the behavioral mechanisms of students with respect to their digital engagement, and the motivators of games. Other theories do not provide the depth of understanding that these three theories provide.

The first of theory, Transformational Leadership Theory (Burns, 1978), provides a perspective to define the teacher's role. Transformational leaders encourage, inspire, and mentor their followers. Within this leadership style, a teacher assumes the role of a transformational leader. In this sense, it is expected that teacher supervision through teaching, and supervision strategies such as control, teaching, feedback and counseling are relationship-centered and constructive of student growth. From this perspective, supervision is framed as a means of developing positive learning spaces that reduce students' digital distractions and increase their academic participation.

Furthermore, Self-Regulated Learning (SRL) Theory (Zimmerman, 2002) explains the behavioral mechanisms that supervision affects. SRL sees self-regulation as a set of cognitive and behavioral processes that students use to during their learning adjust, control, or reflect on their learning. In the digital context (Lee & Shin, 2023), this is the process that students use to control their gaming and media consumption. Theory posits techniques can act as a form of external scaffolding. This helps students internally develop their ability to control impulses, manage their time, and work towards a goal-making and academic balancing responsibility to him/her.

Along the same lines, the Self Determination Theory (SDT) (Przybylski et al., 2010) explains the attractiveness of gaming and where this can be addressed. According to SDT, digital games, even more than traditional academics, reward and satisfy the psychological needs of autonomy, competence, and relatedness, causing a motivational conflict. This perspective means that effective supervisory strategies must regulate learning in a way that it can become more motivationally effective than digital gaming. This can be achieved through the conclusion of student agency, the provision of just right challenge, and improvement of purposeful work or collaboration.

In summary, the three theories present a unified model: Transformational Leadership describes the teacher's role as an architect, SRL articulates the evolving phases of student behavioral change, while SDT locates the inner psychological structure of conflict. Collectively, these three theories present a structured way to hypothesize that teachers' supervisory strategies operate as a mediating variable to empower students with the self-regulatory and motivational equilibrium to reduce online gaming activities and improve their academic performance.

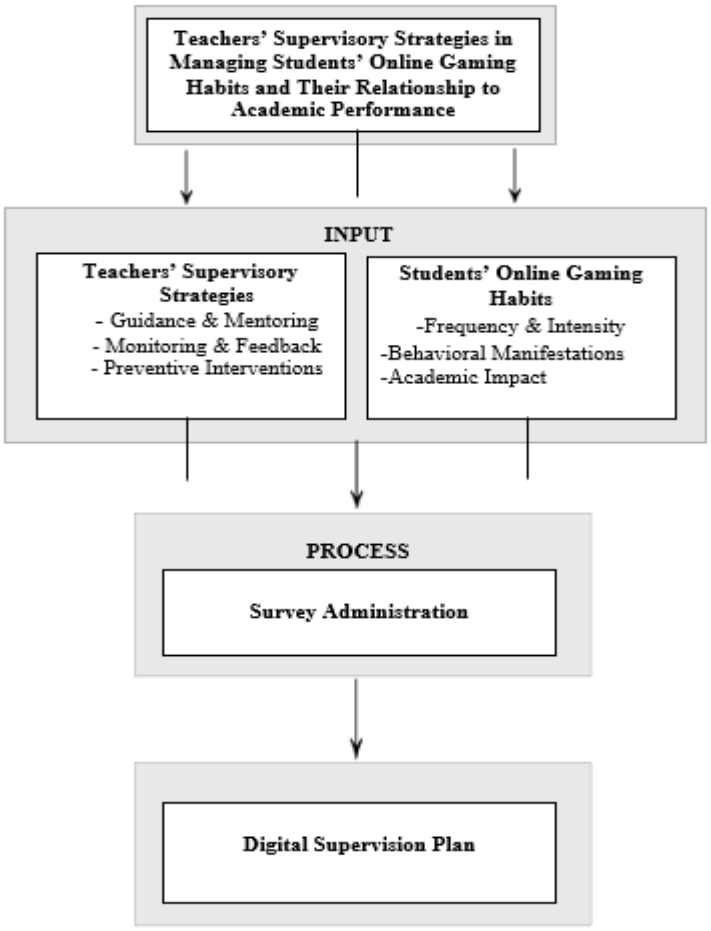

*Figure SEQ Figure * ARABIC 1. Conceptual Framework*

Conceptual Framework

The study adopted the Input-Process-Output (IPO) model as the research framework. The Input component consists of two primary elements: (1) Teachers' Supervisory Strategies, which served as an independent variable encompassing guidance, mentoring, monitoring, and preventive interventions rooted in transformational leadership, and (2) Students' Online Gaming Habits, a second independent variable defined by their frequency, intensity, and behavioral manifestations, reflecting underlying issues of self-regulation and motivational conflict. In the process phase, researchers conducted a quantitative assessment of these inputs through survey administration, which collected the necessary information. The research produced data-driven results that led to the creation of a digital supervision plan for Quezon National High School. The model established a clear sequence, starting with the identification of supervisory inputs and gaming habits and culminating in the creation of practical solutions designed to tackle both behavioral regulation and academic performance issues.

Statement of the Problem

This study aims to investigate the influence of teachers' supervisory strategies and students' online gaming habits on the academic performance of students at Quezon National High School, Division of San Carlos City, for the School Year 2025-2026.

Specifically, it seeks to answer the following questions.

1. What is the level of teachers' supervisory strategies for managing online gaming habits in terms of the following:

a. classroom management,

b. motivational strategies, and

c. support mechanisms

2. What is the level of online gaming habits observed by teachers among students in terms of the following:

a. frequency of gaming

b. intensity of gaming, and

c. behavioral manifestations in the classroom?

3. What is the level of academic performance of students as reflected in their scholastic records during the second quarter of the school year 2025-2026?

4. Is there a significant relationship between the level of students' online gaming habits and their academic performance?

5. Is there a significant relationship between the level of teachers' supervisory strategies and students' academic performance?

6. Based on the findings, what intervention plan may be proposed to manage online gaming habits while supporting academic achievement?

Hypotheses

H_o1: There is no significant relationship between the level of students' online gaming habits and their academic performance.

H_o2: There is no significant relationship between the level of teachers' supervisory strategies and students' academic performance.

Significance of the Study

This research remains irreplaceable for various stakeholders, especially in the Philippine context, specifically the Division of San Carlos City, Negros Occidental.

School Administrators. School leaders have an empirical basis developing school-wide policies and programs. This study aids in the formulation of an Intervention Plan, the distribution of available resources for student wellness programs, and the preparation of teachers' digital training.

Educators. They may adjust and improve their organizational strategies based on these outcomes, incorporate digital wellness into their organization, and devise strategies for students to actively avoid distractions and redirect their focus on organizational objectives.

Students. They gain insights from the strategies employed by the school and their parents to intervene in the gaming and academic equilibrium to attain a better balance.

Parents and Guardians. They become more aware of how gaming activities may compromise their children's schooling and may therefore establish firmer control in the form of a more structured timetable to assist their children in achieving meeting academic goals.

Local Policy Makers. The findings of this study assist teachers in planning how to implement technology and gaming in teaching. They may develop policies that encourage the positive aspects of gaming and education and reduce the focus on negatives.

Future Researchers. This study provides the background, information, and data needed for future researchers to build upon and continue exploring this area and related studies.

Scope of the Study

This research was limited to a study at Quezon National High School situated in Barangay Quezon, San Carlos City, Negros Occidental, Philippines, with a target sample of 80 Junior and Senior High School teachers at Quezon National High School. The period of study was limited to the time span of one academic year, specifically form the academic year 2025 to 2026, and focused on the examination of the relationship among the specific variables: students' online gaming habits, supervisory strategies used by teachers to control students gaming habits, and the academic performance of their students as reflected in their scholastic records for 2nd quarter. This specific sample was selected to attain a thoroughly focused and manageable dataset for the purpose of conducting a detailed analysis within the constraints set for the study. In this study, a descriptive-correlational methodology was used in conjunction with a validated, researcher-constructed survey questionnaire and the analysis was performed using Frequency, Percentage, Mean, and Pearson's Product Moment Correlation.

There are various limitations related to the context and methodology that may influence your understanding of the findings. Some findings may not be applicable to different social and educational setups since only one public high school was studied and only 80 of the teachers were sampled, also including the grades of 467 students, regardless of whether they were gamers or not. The operationalization of the variables was limited because of data privacy and the exclusivity of self-reporting to teachers, which may have resulted in perception biases. In addition, because this was the first of several studies focused on deep relational dynamics to avoid stretching the inquiry too thin, there were no analyses on student demographics and specific game genres. Finally, because of correlational research design, this study is limited to the inferences. There was no causal explanation of the findings. All things considered, this study attempted to provide the framework that would be adjusted and used to create the first digital supervision plan on controlling online gaming behaviors.

Definition of Terms

For greater transparency, the principal terms used in this study are outlined below and accompanied by relevant operational definitions:

Academic Performance. Student achievement is measured using the school's record system and is evaluated against the second quarter of the school year 2025-2026.

Behavioral Manifestations in the Classroom. Effects of video gaming on students' behavior and grades, including loss of attention and participation, sleepiness, deadline lapses, and increased irritability due to restricted gaming.

Classroom Management. The planned and anticipatory methods of a teacher to build and uphold a positive and structured learning environment by enforcing and implementing routines, rules, and procedures, including the reduction of gaming disruptions during teaching.

Excessive Gaming. Student participation in gaming activities is characterized by academic deterioration because of unreasonably prolonged play, particularly during the hours of darkness.

Frequency of Gaming. Students participate in online gaming on a regular basis, including daily and weekend gaming, along with teacher observation of gaming behaviors that resulted in the loss of self-control.

Intensity of Gaming. The amount of participation that gaming commands from a student is characterized by prolonged and uninterrupted gaming, gaming overload to the exclusion of school-related activities, and a noticeable, even concerning, gaming frenzy.

Motivational Strategies. These are the methods that teachers use to reinforce and encourage students to distract them from their gaming responsibilities.

Online Gaming Habits. These are the gaming patterns, as reported and noted by teachers, to involve students across levels, in terms of time spent gaming, the level of engagement, and out-of-turn (behavioral/attentive) indicators in the classroom.

Support Mechanisms. These are the systems (formal and informal) available to teachers in the support of students impacted by gaming, comprising of gaming counseling, parental contacts, support/ include time management, gaming supervision, prompt actions, and teacher– administrator partnerships.

Teachers' Supervisory Strategies. These are the planned and unplanned actions teachers take to control the online gaming behavior of students.

CHAPTER II

METHODOLOGY

This chapter presents the research methods which researchers used to study how teachers used supervisory strategies to manage students who played online games during their academic work. The research study presented its research approach which served as the foundation for its research design and respondents, instruments, procedures, statistical treatment, and ethical considerations. This study employed a quantitative, descriptive-correlational approach to systematically describe the variables and examine the relationships among them within the context of Quezon National High School.

Research Design

Descriptive-correlational quantitative research methodology was used by the researchers. One important aspect of the methodology is the use of descriptive research design which tries to document the characteristics, behaviors, and/or phenomenon of a defined population and/or situation while avoiding the influence of variables in a defined scenario. The researchers used descriptive research design to examine online gaming behavior, teacher supervision, and student academic performance at Quezon National High School. The research analyzed the relationships among academic performance and online game playing behaviors and the relationships between supervision methods and academic performance. The research established relationships among the variables but did not establish any direct cause and effect relationships. This methodology was used as it was the most appropriate and comprehensive way of addressing the situation in QNHS while identifying important relationships to be addressed by locally tailored solutions.

Respondents of the Study

The research site was the Quezon National High School in San Carlos City, Negros Occidental. The respondents consisted of all 80 full-time Junior and Senior High School teachers (Grades 7 to 12) for the School Year 2025-2026. Given the small group size, total population sampling was used to capture the entire breadth of the data. The sample consisted of 45 Junior High School teachers and 35 from Senior High School teachers. Total population sampling was justified in this case as the population size was small and manageable, and every teacher was a key informant facilitating thorough data collection and eliminating sampling error. The specifics are described in Table 1.

Table 1. Distribution of Respondents

Quezon National High School	No. of Teachers	%
Junior High School	45	56.25%
Senior High School	35	43.75%
Total	**80**	**100%**

Research Instrument

The researcher used a validated, researcher-made survey questionnaire to obtain data for this study. The survey was divided into two sections: Part I evaluated teachers' supervisory strategies with 15

items that examined classroom management, motivational strategies, and support mechanisms; Part II evaluated students' online gaming habits with 15 items that examined their frequency, intensity, and behavioral manifestations. Participants responded to a four-point Likert scale, where 4 = Strongly Agree, 3 = Agree, 2 = Disagree, and 1 = Strongly Disagree. See Appendix H for the Variable-Indicator Matrix for a detailed description of how each variable is operationalized and the respective survey questions.

Validity and Reliability of the Research Instrument

The instrument‘s content validity was established through evaluation by a panel of three (3) doctorate holders in Education who reviewed the first draft and addressed the deficiencies concerning the instrument's content validity. Areas for improvement included the presentation and the structure of the survey questions. Changes were incorporated based on feedback using Good and Scates validation. The instrument's validity was rated 4.82 for this item, which is the highest rating possible.

The first draft was pilot-tested on 30 teachers from another school in the same division. The first draft of the instrument had an overall Cronbach's alpha of 0.96. The instrument had excellent internal consistency, with the survey items highly correlated to the same underlying constructions. The survey reliably measured example constructs of online gaming habits and supervisory strategies. These results showed that the survey instrument was dependable for use, and data collection for the main study could commence.

Data Collection Procedure

The researcher reached out to the Schools Division Superintendent and School Principal and received ethical clearance from the corresponding Institutional Review Board. After this stage of the approval process was completed, the researcher explained the study to the teacher respondents, who were then presented with informed consent documents. The participants, who were advised of their right to withdraw from the study at any time, were asked to sign the consent form. The validated questionnaire was then pilot-tested with the specified group, and feedback was incorporated to produce the final version. The completed questionnaires were then administered in paper format to the teacher respondents, who were then collected. Finally, the researcher analyzed the data using Excel and SPSS statistical software.

Data Analysis Procedure

Data analysis and processing were performed systematically using Excel and SPSS for statistical analysis. The analysis was done for two phases. Descriptive analysis is done for profiling the variables while the inferential analysis is done to examine the relationships as well as hypotheses. Descriptive statistics were utilized, specifically the weighted mean, percentage, and frequency, to profile the ranges in the levels of teachers' supervisory strategies, students' online gaming habits, and academic performance (Research Questions 1, 2, and 3). The academic performance was evaluated using the students' numerical average grade obtained from the second quarter of grade 7-12 students. In correlation to the 4th and 5th Research Questions as well as in testing the null hypotheses, Pearson's Product- Moment Correlation (Pearson's r) was utilized. The use of Pearson's r was justified as the data for analysis were composite scores obtained by summation of multiple Likert-scale items. These summed scores were regarded to be continuous and of interval level, thus satisfying the requirements for Pearson's correlation.

The analysis results were the foundation for developing the digital supervision plan and the recommendations were based on empirically established relationships in the context of the QNHS.

Statistical Treatment

A statistical analysis framework is paramount in organizing, measuring, and interpreting gathered data because raw data collection is only the beginning of the entire research process, and the subsequent stages demand comprehensive data analysis to enable the researcher to formulate substantive conclusions. This study employed the incalculable statistical methods outlined below to

comprehend and respond to the study's research questions based on the data acquired from the sample.

The results from the survey were analyzed through frequency and percentage using the following formula.

Percentage: % = f /n x 100

Where:

% = percentage

F = frequency

N = number of occurrences

The weighted mean was also calculated for each of the composite scores and for each of the sub-scales of the variables.

For the calculations, the following formula was applied:

$$\bar{W}X = \frac{S1W5 + S2W4 + S3W3 + S4W2 + S5W1}{N}$$

Where:

S = number of responses

N = number of cases

W = weight of the scale

$\bar{W}X$ = Weighted mean

Verbal Interpretation Scale:

3.26 – 4.00: Strongly Agree

2.51 – 3.25: Agree

1.76 – 2.50: Disagree

1.00 – 1.75: Strongly Disagree

3. Pearson's r, also known as the Product Moment Correlation Coefficient, was used to test the hypothesis.

Formula:

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

Where:

r = Pearson correlation.

N = the number of pairs of data points

∑XY is the sum of the paired products of X and Y.

∑X: This denotes the sum of all values of X.

∑Y: This denotes the sum of all values of Y.

∑X^2: This denotes the sum of all squared values of X.

∑Y^2: This denotes the sum of all squared values of Y.

Ethical Considerations

This study was conducted within the boundaries of ethics. This study fully complied with the stipulations of the Data Privacy Act of 2012 (RA 10173). Anonymity and confidentiality were the top priorities of the study; therefore, no personal identifiers were collected, and respondents were totally free to withdraw from the study at any time and for any reason. Data and reports were only presented as aggregate data and were protected by codes. All electronic data were handled with security protections including password files and the study's research data were kept in accordance with the data privacy rules for 5 months after the completion of the study and followed by a permanent deletion.

CHAPTER III

RESULTS AND DISCUSSION

The findings presented in this chapter comprise teachers' supervisory strategies, students' online gaming, and academic performance encompassing both descriptive and correlation analyses. The findings provide interpretations in relation to literature and theory and offer suggestions for interventions for the Quezon National High School.

Teachers' Supervisory Strategies

Table 2. Level of Teachers' Supervisory Strategies in Managing Online Gaming Habits in Terms of Classroom Management

Statement	4		3		2		1		TOTAL		$W\ \bar{X}$	I
A. Classroom Management	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**		
I Consistently enforce classroom rules that minimize gaming distractions.	67	83.75	13	16.25	0	0	0	0	80	100	3.84	SA
Clear classroom expectations help reduce gaming's negative effects.	65	81.25	15	18.75	0	0	0	0	80	100	3.81	SA
I adapt classroom routines to discourage excessive gaming.	57	71.25	23	28.75	0	0	0	0	80	100	3.71	SA
I proactively address gaming-related disruptions in class.	54	67.5	26	32.5	0	0	0	0	80	100	3.68	SA
I am confident in my ability to manage students influenced by gaming.	47	58.75	32	40	1	1.25	0	0	80	100	3.58	SA
Total / General Weighted Mean											**3.72**	**SA**

Note. N = 80; $W\ \bar{X}$ = Weighted Mean; I = Interpretation; f = Frequency; % = Percentage

Teachers have a weighted mean of 3.72 for the item from Table 2, and they "Strongly Agree" that they use effective classroom management strategies that deal with students' online gaming. This consensus is drawn from the responses of 80 teachers across five indicators. The highest-rated practice is consistently enforcing classroom rules to minimize gaming distractions, with a mean of 3.84, where 83.75% of teachers strongly agree. Conversely, while still in the "Strongly Agree" category, teachers show slightly lower confidence in their ability to manage students influenced by gaming, as indicated by a mean of 3.58. Overall, response distribution reveals that most teachers either strongly agree (72.5%) or agree (27.25%) with the effectiveness of these supervisory strategies, with only a minimal 0.25% expressing disagreement. The findings suggest that teachers consider themselves proficient in the use of classroom management strategies to reduce gaming disruptions, although there seems to remain a gap that could be addressed by additional support to strengthen their confidence in managing the involved students.

The results in Table 2 corroborate the findings of the literature review accurate to the level of teachers` supervisory strategies from the perspective of classroom management. At Quezon National High School, teachers demonstrated the highest level of confidence (overall weighted mean of 3.72) in the application of classroom management strategies to deal online gaming problems.

Specifically, the highest-rated practice was "consistently enforcing classroom rules to minimize gaming distractions" (mean = 3.84), which echoes the findings of Sun et al. (2023), who emphasized that effective supervision integrates clear classroom rules regarding device use with explicit instruction in digital well-being.

Furthermore, the RRL highlights that effective supervisory strategies should be proactive and skill-building rather than merely punitive. This is reflected in the teachers' responses, where practices such as adapting classroom routines to discourage excessive gaming were strongly endorsed. However, the slightly lower confidence in managing students influenced by gaming (mean = 3.58) suggests a potential gap in teacher training and institutional support, a point underscored by Easterling (2021) and Moliner (2022), who found that educators trained in digital pedagogy and cyber-wellness employ more evidence-based responses.

The RRL also emphasizes the importance of monitoring paired with educational efforts, rather than reliance on restriction alone. Table 2's findings support this, as teachers reported using structured classroom management not just to control behavior, but to create an environment conducive to academic focus—consistent with the integrated approach validated in international studies (Weinstein et al., 2023). Thus, the data from Table 2 not only validate the theoretical and empirical foundations presented in the RRL but also highlight areas for further professional development, particularly in strengthening teachers' confidence and skills in managing students deeply affected by gaming habits.

Table 3. Level of Teachers' Supervisory Strategies in Managing Online Gaming Habits in Terms of Motivational Strategies

Statement	4		3		2		1		TOTAL		$W\ \bar{X}$	I
B. Motivational Strategies	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**		
I encourage students to prioritize academics over gaming.	72	90	7	8.75	1	1.25	0	0	80	100	3.89	SA
I frequently use motivational techniques to reduce gaming distractions.	57	71.25	23	28.75	0	0	0	0	80	100	3.71	SA
I provide positive reinforcement to help students focus more on academics.	57	71.25	23	28.75	0	0	0	0	80	100	3.71	SA
I recognize students who show discipline in managing gaming.	56	70	20	25	4	5	0	0	80	100	3.65	SA
I provide consistent support to help students deal with gaming challenges.	39	48.75	38	47.5	3	2.5	0	0	80	100	3.43	SA
Total / General Weighted Mean											**3.68**	**SA**

Note. N = 80; $W\ \bar{X}$ = Weighted Mean; I = Interpretation; f = Frequency; % = Percentage
Scale/Mean Range/Interpretation: 4 = 3.26-4.00 (Strongly Agree); 3 = 2.51-3.25 (Agree); 2 = 1.76-2.50 (Disagree); 1 = 1.00-1.75 (Strongly Disagree)

Table 3 presents data on the level of teachers' supervisory strategies for managing online gaming habits, focusing specifically on Motivational Strategies. The responses from 80 teachers were evaluated using five indicators rated on a 4-point Likert scale (4 = Strongly Agree, 1 = Strongly Disagree). The general weighted mean for motivational strategies is 3.68, which falls within the "Strongly Agree" range, indicating that teachers generally agree they use effective motivational techniques to address gaming-related issues.

The indicator with the highest agreement is "I encourage students to prioritize academics over gaming" with a weighted mean of 3.89, where 90% of teachers strongly agreed. Lowest-rated was "I provide consistent support to help students deal with gaming challenges" with a mean of 3.43, which is still in the "Strongly Agree" range, but reflects somewhat less consistency in supportive follow-through.

Response distribution shows that 70.25% of responses fell into the "Strongly Agree" category and 27.75% into "Agree," with only 1.8% in "Disagree" and no "Strongly Disagree" responses. This indicates strong overall teacher confidence in using motivational approaches, though there is room for enhancing structured and ongoing support mechanisms for students struggling with gaming habits.

Table 3 illustrates the Motivational Strategies with the overall weighted mean of 3.68. This reflects the teachers' strong agreement in the use of motivational approaches in dealing with gaming behavior. The item with the highest rating was "I encourage students to prioritize academics over gaming" (mean = 3.89) which also supports the Self-Determination Theory (SDT) (Przybylski et al., 2010) presented in the RRL.

SDT posits that effective supervisory strategies should make learning more motivationally engaging by incorporating student choice and fostering collaboration, thereby competing with the allure of digital games (Przybylski et al., 2010). However, the slightly lower rating for "I provide consistent support to help students deal with gaming challenges" (mean = 3.43) suggests a need for more structured follow-through—a point emphasized in the literature, where blended monitoring and educational support are deemed more effective than motivational rhetoric alone (Weinstein et al., 2023).

Table 4. Level of Teachers' Supervisory Strategies in Managing Online Gaming Habits in Terms of Support Mechanisms

Statement	4		3		2		1		TOTAL		$W\ \bar{X}$	I
C. Support Mechanisms	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**		
I suggest time-management strategies for balancing gaming and academics.	52	65	26	32.5	2	2.5	0	0	80	100	3.63	SA
I provide counseling to students affected by excessive gaming.	35	43.75	41	51.25	2	2.5	2	2.5	80	100	3.36	SA
I collaborate with colleagues or administrators to manage gaming-related issues.	30	37.5	46	57.5	2	2.5	2	2.5	80	100	3.30	SA
I regularly communicate with parents about gaming-related concerns.	27	33.75	49	61.25	4	5	0	0	80	100	3.29	SA
I promptly initiate interventions for students struggling with gaming.	25	31.25	48	60	5	6.25	2	2.5	80	100	3.20	A
Total / General Weighted Mean											**3.36**	**SA**

Note. N = 80; $W\ \bar{X}$ = Weighted Mean; I = Interpretation; f = Frequency; % = Percentage

Scale/Mean Range/Interpretation: 4 = 3.26-4.00 (Strongly Agree); 3 = 2.51-3.25 (Agree); 2 = 1.76-2.50 (Disagree); 1 = 1.00-1.75 (Strongly Disagree)

The indicator with the highest weighted mean is "I suggest time-management strategies for balancing gaming and academics" at 3.63, with 65% of teachers strongly agreeing. On the other hand, the item with the lowest rating, "I promptly initiate interventions for students struggling with gaming" has a mean of 3.20 which is within the range of "Agree".

Response distribution reveals that while most teachers either strongly agree (42.25%) or agree (52.5%) with these support strategies, there is a noticeable portion of responses in the disagree categories (3.75% disagree and 1.5% strongly disagree), particularly for indicators related to counseling, intervention, and collaboration. This suggests that while teachers perceive themselves as supportive, there are gaps in proactive and individualized support actions such as counseling and immediate intervention. Enhancing structured support systems and professional collaboration may help address these areas.

Table 4 examines Support Mechanisms, yielding an overall mean of 3.36. The highest agreement was for suggesting time-management strategies (mean = 3.63), which reflects the RRL's emphasis on skill-building interventions rather than restrictive measures (Sun et al., 2023). However, lower ratings in areas such as counseling and prompt intervention indicate a gap in proactive and individualized support—a concern raised in studies highlighting the need for teacher training and institutional backing in handling behavioral issues (De Vela, 2022; Easterling, 2021). This aligns with the RRL's assertion that supervisory success depends on adequate training and a supportive school ecosystem.

Table 5. Summary Table of the Level of Teachers' Supervisory Strategies

TEACHERS' SUPERVISORY STRATEGIES	GENERAL WEIGHTED MEAN	INTERPRETATION
Classroom Management	3.72	Strongly Agree (SA)
Motivational Strategies	3.68	Strongly Agree (SA)
Support Mechanisms	3.36	Strongly Agree (SA)
Overall Mean	**3.59**	**Strongly Agree (SA)**

The summary table reveals that teachers exhibit a strong level of Teachers' Supervisory Strategies in managing Online Gaming Habits. The overall weighted mean of 3.59 (Strongly Agree). From the four indicators, the Classroom Management with a weighted mean of 3.72 shows the most effective in providing the potential to retain an optimal flow of students over the given time. The next highest mean is 3.68 for Motivational Strategies. For Support Mechanisms, the mean is 3.36, all of which were interpreted to mean (SA) Strongly Agree. The results suggest that teachers are effectively involved in the management of students' online gaming habits.

Online Gaming Habits

Table 6. Level of Online Gaming Habits Observed by Teachers in Terms of Frequency of Gaming

Statement	4		3		2		2		TOTAL		$W\bar{X}$	I
A. Frequency Gaming	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**		
1.4 Students usually play games both on weekdays and weekends.	55	68.75	25	31.25	0	0	0	0	80	100	3.69	SA
1.5 Students often extend their gaming beyond the time they intended.	53	66.25	25	31.25	2	2.5	0	0	80	100	3.64	SA
1.2 Students often sacrifice study time for gaming.	48	60	29	36.25	3	3.75	0	0	80	100	3.56	SA
1.3 Gaming is a regular part of students' daily routines.	47	58.75	31	38.75	2	2.5	0	0	80	100	3.56	SA
1.1 Many students play games almost every day.	50	62.5	23	28.75	2	2.5	5	6.25	80	100	3.41	SA
Total / General Weighted Mean											**3.57**	**SA**

Note. N = 80; $W\bar{X}$ = Weighted Mean; I = Interpretation; f = Frequency; % = Percentage

Scale/Mean Range/Interpretation: 4 = 3.26-4.00 (Strongly Agree); 3 = 2.51-3.25 (Agree); 2 = 1.76-2.50 (Disagree); 1 = 1.00-1.75 (Strongly Disagree)

The indicator which has highest weighted mean is "Students usually play games both on weekdays and weekends" at 3.69, with 68.75% of teachers strongly agreeing. In contrast, the lowest-rated item is "Many students play games almost every day" yielded a weighted men of 3.41, even it falls in the "Strongly Agree" range. Notably, this indicator also had the highest percentage of disagreement (6.25% strongly disagree), suggesting some variability in daily gaming patterns among students. Response distribution shows that 63.25% of teachers strongly agreed and 33.25% agreed with the frequency-related statements, while a small percentage expressed disagreement (2.25%) or strong disagreement (6.25%). This indicates a prevalent teacher perception that gaming is a common and habitual part of students' daily lives, often extending into both weekday and weekend routines and sometimes interfering with intended time limits. These observations highlight the pervasive nature of gaming in students' schedules, which may warrant structured time-management guidance and monitoring.

Table 6 assesses the Frequency of Gaming, with a total weighted mean of 3.57. Teachers strongly agreed that students play games both on weekdays and weekends (mean = 3.69), supporting the RRL's discussion on time displacement as a key mechanism linking gaming to poor academic outcomes (Mahmud et al., 2023). The RRL also notes that gaming frequency often interferes with study and sleep, particularly in nocturnal gaming patterns—a behavior observed anecdotally at QNHS and validated by international research (Faílde, Garrido et al., 2024).

Table 7. Level of Online Gaming Habits Observed by Teachers in Terms of Intensity of Gaming

Statement	4		3		2		1		TOTAL		$W\ \bar{X}$	I
B. Intensity of Gaming	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**		
Students show strong excitement or urgency about gaming.	49	61.25	29	36.25	2	2.5	0	0	80	100	3.59	SA
Students spend long hours playing games at once.	47	58.75	32	40	1	1.25	0	0	80	100	3.58	SA
Gaming often takes more time than school-related work.	41	51.25	35	43.75	4	5	0	0	80	100	3.46	SA
Students often prioritize gaming over academic tasks.	40	50	35	43.75	5	6.25	0	0	80	100	3.44	SA
Some students continue gaming even when they are tired.	39	48.75	36	45	5	6.25	0	0	80	100	3.43	SA
Total / General Weighted Mean											**3.50**	**SA**

Note. N = 80; $W\ \bar{X}$ = Weighted Mean; I = Interpretation; f = Frequency; % = Percentage

Scale/Mean Range/Interpretation: 4 = 3.26-4.00 (Strongly Agree); 3 = 2.51-3.25 (Agree); 2 = 1.76-2.50 (Disagree); 1 = 1.00-1.75 (Strongly Disagree)

Table 7 presents the level of online gaming habits observed by teachers among students, focusing specifically on the Intensity of Gaming. Based on 80 teacher responses across five indicators, the total weighted mean for gaming intensity is 3.50, that falls within the "Strongly Agree" range, that indicates teachers perceive student gaming behavior as notably intense and often prioritized over other activities.

The indicator with the highest weighted mean is "Students show strong excitement or urgency about gaming" at 3.59, with 61.25% of teachers strongly agreeing. The lowest-rated item is "Some students continue gaming even when they are tired" with a weighted mean of 3.43, still within the "Strongly Agree" range. Across all indicators, none received responses in the "Strongly Disagree" category, and disagreement was low (4.25% in "Disagree").

Response distribution shows that most teachers either strongly agreed (54%) or agreed (41.75%) with statements describing the intensity of student gaming habits. This suggests a consistent teacher observation that gaming is not only frequent

but also engaged in with considerable duration, priority, and emotional investment sometimes even at the expense of academic duties and personal well-being. These findings point to a need for strategies that help students develop self-regulation and balance between gaming and essential daily activities.

Table 7 explored Intensity of Gaming, with an overall mean of 3.50. The highest-rated indicator was "Students show strong excitement or urgency about gaming" (mean = 3.59), reflecting the motivational pull of gaming explained by SDT in the RRL. The literature underscores that gaming often satisfies needs for autonomy, competence, and relatedness more effectively than academics, creating a motivational conflict that teachers must address through engaging and supportive strategies (Przybylski et al., 2010).

Table 8. Level of Online Gaming Habits Observed by Teachers in Terms of Behavioral Manifestations in the classroom

Statement	4		3		2		1		TOTAL		$W\ \bar{X}$	I
C. Behavioral Manifestations in the Classroom	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**		
Gaming contributes to missed deadlines.	49	61.25	29	36.25	2	2.5	0	0	80	100	3.59	SA
Students show reduced concentration in class due to gaming.	46	57.5	32	40	2	2.5	0	0	80	100	3.55	SA
Classroom participation is negatively affected by gaming.	44	55	33	41.25	3	3.75	0	0	80	100	3.51	SA
Students often appear sleepy during class.	42	52.5	34	42.5	4	5	0	0	80	100	3.48	SA
Some students become irritable when prevented from gaming.	42	52.5	34	42.5	4	5	0	0	80	100	3.48	SA
Total / General Weighted Mean											**3.52**	**SA**

Note. N = 80; $W\ \bar{X}$ = Weighted Mean; I = Interpretation; f = Frequency; % = Percentage

Scale/Mean Range/Interpretation: 4 = 3.26-4.00 (Strongly Agree); 3 = 2.51-3.25 (Agree); 2 = 1.76-2.50 (Disagree); 1 = 1.00-1.75 (Strongly Disagree)

The table presents the level of online gaming habits observed by teachers among students, specifically in terms of Behavioral Manifestations in the Classroom. The total weighted mean is 3.52, which falls within the "Strongly Agree" range (3.26–4.00), indicating that teachers consistently observe noticeable negative classroom behaviors linked to students' gaming habits. The indicator with the highest weighted mean is "Gaming contributes to missed deadlines" at 3.59, with 61.25% of teachers strongly agreeing. The lowest-rated item is "Students often appear sleepy during class" and "Some students become irritable when prevented from gaming," both with a weighted mean of 3.48. Despite being the lowest, these scores still reflect strong agreement.

Response distribution reveals that 55.75% of teachers strongly agreed and 40.5% agreed with the behavioral indicators, while only 3.75% expressed disagreement. There were no "Strongly Disagree" responses. This indicates a clear teacher consensus that excessive gaming adversely affects student engagement, attentiveness, mood, and academic responsibility in the classroom setting. These observations highlight that gaming-related behaviors are not only external to school but visibly impact classroom dynamics and student performance, underscoring the need for integrated classroom management and student support strategies to mitigate these effects.

Table 8 measured Behavioral Manifestations in the Classroom, with an overall mean of 3.52. The most agreed-upon item was "Gaming contributes to missed deadlines" (mean = 3.59), which directly relates to the RRL's findings on how problematic gaming disrupts academic responsibility and engagement (Satapathy et al., 2025). These observable behaviors, such as sleepiness, irritability, and reduced concentration are consistent with the negative academic outcomes associated with excessive gaming, as highlighted in both local and international studies (Pineda et al., 2023; Jain et al., 2021).

Table 9. Summary Table of the Level of Online Gaming Habits

STUDENTS' ONLINE GAMING HABITS	GENERAL WEIGHTED MEAN	INTERPRETATION
Frequency of Gaming	3.57	Strongly Agree (SA)
Behavioral Manifestations in the Classroom	3.52	Strongly Agree (SA)
Intensity of Gaming	3.50	Strongly Agree (SA)
Overall Mean	**3.53**	**Strongly Agree (SA)**

The table shows the level of online gaming habits among students as observed teachers. The overall mean value of 3.53, interpreted as Strongly Agree (SA), shows that teachers find a high level of online gaming among students. Among the indicators, the Frequency of Gaming had the highest mean value of 3.57, followed by Behavioral Manifestations in the Classroom with a mean value of 3.52, and Intensity of Gaming with a mean value of 3.50, all of which are interpreted as Strongly Agree. The overall result shows that online gaming habits are visible and regularly observed by teachers in the classroom environment.

Academic Performance

Table 10. Level of Academic Performance of students as reflected in their scholastic records

	4		3		2		1		TOTAL		$W\ \bar{X}$	I
GRADE LEVEL	O (90–100)		VS (85–89)		S (80–84)		FS (75–79)					
	f	%	f	%	f	%	f	%	f	%		
Grade 7	3	3.45	22	25.29	50	57.47	12	13.79	87	100	83.02	S
Grade 8	8	10.81	18	24.32	37	50.00	11	14.86	74	100	83.88	S
Grade 9	3	3.49	25	29.07	39	45.35	19	22.09	86	100	82.80	S
Grade 10	10	10.42	33	34.38	37	38.54	16	16.67	96	100	84.24	S
Grade 11	2	3.45	13	22.41	27	46.55	16	27.59	58	100	82.19	S
Grade 12	1	1.52	15	22.73	41	62.12	9	13.64	66	100	82.65	S
Total / General Weighted Mean											**83.13**	**S**

Note. N = 80; $W\ \bar{X}$ = Weighted Mean; I = Interpretation; f = Frequency; % = Percentage

Scale/Mean Range/Interpretation: 4 = 90-100 (O=Outstanding); 3 = 85-89 (VS=Very Satisfactory); 2 = 80-84 (S= Satisfactory); 1 = 75-79 (FS = Fairly Satisfactory)

Table 10 presents the student grades during the second quarter of 2025–2026 school year, demonstrated academic performance results which show a weighted mean of 83.13 that leads to Satisfactory rating. Grade 10 attained the highest average score of 84.24 across all students from Grades 7 to 12 while Grade 11 achieved the lowest score of 82.19. The performance distribution shows that 50.01% of students performed at the Satisfactory level while 26.37% achieved Very Satisfactory and 18.11% reached Fairly Satisfactory and only 5.52% attained Outstanding performance. The Fairly Satisfactory category contains the highest number of students from Grade 11 who reach 27.59% according to this data. All grade levels received Satisfactory ratings which demonstrates that students meet passing requirements, but they need to work on their academic skills. The academic challenges exist throughout all grades according to the results of this study. The student level of concentration toward their studies as well as their study effectiveness and their study environment which includes their gaming time will determine their upcoming performance results according to this research.

Table 10 presented Academic Performance data which showed an overall mean of 83.13 (Satisfactory) results. The RRL emphasizes that the relationship between gaming and academic performance is moderated by factors such as self-regulation sleep hygiene and teacher support. The fact that no grade level exceeded a Satisfactory rating aligns with the literature's caution that excessive gaming especially at night impairs concentration and learning outcomes Faílde Garrido et al. 2024. The RRL synthesis demonstrates that schools require specific supervisory measures which should monitor both academic activities and student conduct outside of class.

Relationship Between Students' Online Gaming Habits and Academic Performance

Table 11. Correlation Between Students' Online Gaming Habits and Academic Performance (n=80)

Variables	*r*	*p*-Value	95% CI	Effect Size
Online Gaming Habits & Academic Performance	-.622	.378	[-.75-.45]	Large

Note. CI = Confidence Interval

The table displays a strong negative relationship between students who play online games and their academic performance because their correlation coefficient equals -0.622 with a p-value of 0.378. The research result does not reach statistical significance, but its effect size indicates an important relationship which should be examined through theoretical frameworks. The study outcome supports Self-Regulated Learning (SRL) Theory (Zimmerman, 2002) which states that students need to manage their educational growth to achieve academic success. Students who spend too much time on video games actually demonstrate self-regulation problems because they choose to play games instead of studying which leads to academic work loss for their planned goals according to their shown behavior in Tables 6 and 7. The Self-Determination Theory (SDT) (Przybylski et al., 2010) shows how this relationship works by providing a framework for determining student motivation. Online games provide players with immediate access to three psychological needs which are autonomy and competence and relatedness while academic work creates difficulty in fulfilling those needs. Excessive gaming results in a decline of intrinsic motivation which students require to participate in academic activities, thus creating a negative impact on their academic performance. The link between the two variables lacks statistical significance which leads us to maintain the null hypothesis ($H_0 1$) but the measured strength and direction of the link between two variables shows that Transformational Leadership Theory helps to direct teacher supervision activities. Teachers who use transformational teaching methods can guide their students by using mentoring techniques and motivational methods which will enable students to apply their gaming experience to their studies, thus creating a foundation which helps students learn to manage their time between online activities and academic work (Burns, 1978; Lee & Shin, 2023). The research results did not show any direct linear connection which exists between regulation and motivation, yet the relationship between these two elements stayed operational throughout the entire study and

supervision remains critical for understanding and intervening in students' gaming-related academic challenges.

Relationship Between Teachers' Supervisory Strategies & Academic Performance

Table 12 . Correlation Between Teachers' Supervisory Strategies & Academic Performance (n=80)

Variables	*r*	*p*-value	95% CI	Effect Size
Supervisory Strategies & Academic Performance	-.657	.343	[–.78 –.48]	Large

Note. CI = Confidence Interval.

The data in Table 12 displays a strong negative link between the supervisory strategies teachers use and the academic results students achieve with a correlation coefficient of -0.657 and a p-value of 0.343. Although the effect size reaches a high value, the researchers found no statistical significance because the correlation coefficient did not meet the .05 threshold. The study results show that supervision does not produce reliable academic outcomes for this group but shows a relationship that demands further examination. It shows that teachers increase their supervision level when they see students who have academic difficulties. The research by De Vela (2022) demonstrates that teachers change their supervisory methods because they want to meet the current student needs which they observe during school. The non-significant p-value leads to the retention of null hypothesis ($H_0 2$) according to statistical guidelines. The research findings demonstrate that student support systems which include home environments and student motivation and mental health should be treated as elements that operate together with supervisory methods to determine academic results. The evidence-based intervention plan that this study proposes will serve to assist students at Quezon National High School in regulating their online gaming while they work toward academic success.

CHAPTER IV

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions, and recommendations of the study regarding the effect of gaming habits on the academic performance and social skills of students at Quezon National High School. It features the results of the study, makes conclusions depending on the results, and gives recommendations to stakeholders and to possible researchers.

Summary of Findings

This study investigated the supervisory strategies employed by Junior and Senior High School teachers at Quezon National High School to manage students' online gaming habits, and examined the relationship between these strategies, gaming habits, and academic performance.

1. Teachers' Supervisory Strategies were perceived as highly effective, with overall means in the "Strongly Agree" range across all domains, though support mechanisms (e.g., counseling, prompt intervention) scored slightly lower.
2. Students' Online Gaming Habits were frequently observed by teachers, with high frequency (M=3.57), intensity (M=3.50), and noticeable behavioral manifestations in class (M=3.52), such as sleepiness and missed deadlines.
3. Academic Performance across grades 7–12 was rated as "Satisfactory" (overall M=83.13), with no grade level exceeding this category, indicating room for improvement.
4. Correlation Analyses revealed strong negative correlations between:

a) Gaming habits and academic performance ($r = –.622$, $p = .378$)

b) Supervisory strategies and academic performance ($r = –.657$, $p = .343$)

Neither relationship was statistically significant, though effect sizes were large.

Conclusions

Based on the comprehensive analysis of data, the following conclusions are drawn:

1. Teachers at Quezon NHS are actively engaged in supervisory efforts but may benefit from enhanced training in proactive and individualized support.
2. Online gaming is a pervasive part of students' lives, with observable academic repercussions.
3. While strong associations exist between gaming, supervision, and grades, the non-significant correlations and correlational design prevent causal conclusions; however, the direction and large effect sizes of these relationships carry important theoretical and practical implications. The findings reveal a complex supervisory dynamic rather than a straightforward linear impact. The negative correlation between supervisory strategies and academic performance (r = -.657) does not imply that supervision is detrimental. Instead, it strongly suggests a reactive supervisory pattern, where teachers intensify their monitoring, rule-enforcement, and support efforts specifically in response to observing academic struggle or pronounced gaming-related behaviors in their students. This positions teachers' strategies not as a primary driver of performance, but as a responsive and targeted intervention deployed where perceived need is greatest. Consequently, the study underscores the need to interpret supervisory effectiveness not by a direct positive correlation with grades, but by its capacity to identify at-risk students and deploy appropriate, tiered support. A holistic, skill-based approach to digital supervision is needed—one that balances regulation with motivation and self-regulation development, moving from a reactive to a more proactive and preventive model of support.
4. A holistic, skill-based approach to digital supervision is needed—one that balances regulation with motivation and self-regulation development.

Recommendations

Considering the study's conclusions, the following recommendations are offered:

For Administrators: Develop and implement a Digital Wellness Policy featuring teacher training, student skill-building modules, parent collaboration, and policy integration to promote balanced digital habits and improved academic outcomes at QNHS.

For Teachers: Integrate motivational mentoring and self-regulation coaching into daily supervision.

For Parents: Engage in consistent home–school communication regarding gaming habits and academic support.

For Future Researchers: Conduct longitudinal or mixed-methods studies to explore causal mechanisms and contextual moderators.

DIGITAL SUPERVISION PLAN FOR MANAGING ONLINE GAMING HABITS AND SUPPORTING ACADEMIC ACHIEVEMENT

Intervention Plan

This section outlines the intervention plan developed for the purposes of this study for the online gaming behaviors, the teacher supervision practices, and the academic performance of the students at Quezon National High School (QNHS). It seeks to cultivate a healthier digital lifestyle among students and improve teacher supervision, mentorship and coaching abilities. It is based on the principles of Transformational Leadership Theory, Self-Regulated Learning (SRL) Theory and Self-Determination Theory (SDT). The plan outlines success criteria, objectives for each activity, and a budget for measurability, sustainability and accountability purposes.

I. Rationale and Theoretical Basis

The correlation analyses found strong negative correlations, although the results lacked statistical significance, between the negative gaming habits and the negative gaming habits and the negative gaming habits and the negative gaming. The negative outcomes suggest that restrictive or reactive methods, in and of themselves, are not enough. What is needed is an integrated framework based on skill building that:

a) Transforms teachers into mentors (Burns, 1978)

b) Cultivates self-regulation in students (Zimmerman, 2002)

c) Motivates gaming interest into academic engagement (Przybylski et al., 2010)

II. Objectives of the Intervention Plan

1. To improve teachers' oversight skills on digital behavioral management via proven strategies.

2. To provide students with skills in self-regulation to be able to manage gaming and studies.

3. To strengthen a supportive ecosystem between school and home to enhance digital wellness.

4. To incorporate gaming mechanics into teaching and learning processes to boost academic engagement, where relevant.

5. To develop a system for monitoring and evaluation for the sake of ongoing enhancement.

III. Components of the Intervention Plan

A. Teacher Capacity Building

Component	Description	Objectives per Activity	Success Indicators	Timeline
Workshop 1: Digital Supervision & Mentoring	Training on proactive supervision, motivational interviewing, and non-punitive redirection.	(1) Train 100% of QNHS teachers in digital supervision basics. (2) Increase teacher self-efficacy in managing gaming-related disruptions by 30% (pre-/post-workshop survey).	≥90% attendance; post-workshop evaluation score ≥4.0/5.0; teacher-reported confidence increase.	Month 1
Workshop 2: Gamified Pedagogy	Hands-on session on using game elements (badges, quests, leaderboards) in lesson plans.	(1) Enable 80% of teachers to design one gamified lesson. (2) Increase student engagement in pilot classes by 25%.	Lesson plans submitted; student engagement surveys; classroom observation notes.	Month 2
Peer Coaching Circles	Monthly teacher-led forums to share challenges and strategies.	(1) Establish 4 coaching circles (1 per grade cluster). (2) Document and share at least 10 effective strategies per quarter.	Attendance logs; strategy portfolio; participant satisfaction ≥85%.	Ongoing
Resource Toolkit	Digital repository of lesson plans, parent communication templates, and self-regulation activities.	(1) Develop and disseminate toolkit to all teachers. (2) Achieve 80% toolkit utilization rate within 3 months.	Download/access logs; teacher feedback surveys.	Month 1

B. Student Skill Development Modules

Module	Focus	Key Activities	Success Indicators	Timeline
Module 1: Time Management & Prioritization	Helping students allocate time for gaming, study, and rest.	Time-audit exercises, scheduling tools, priority matrices.	80% of students complete time-audit; 70% submit balanced weekly schedules.	Months 2–3
Module 2: Digital Self-Regulation	Building awareness of gaming triggers and impulse control.	Self-monitoring logs, mindfulness techniques, trigger identification worksheets.	Reduction in self-reported gaming hours by 15%; improved self-regulation scores.	Months 3–4
Module 3: Sleep & Academic Wellness	Educating on the impact of nocturnal gaming on concentration.	Sleep diaries, energy management plans, "screen curfew" pledges.	Increase in average sleep hours by 30 minutes; decrease in tardiness/absenteeism.	Months 4–5
Module 4: Goal Setting & Reward Systems	Translating gaming achievement motivation to academic goals.	SMART goal worksheets, progress trackers, achievement badges.	75% of students set and achieve at least one academic SMART goal per quarter.	Months 5–6

C. Parent–School Collaboration Framework

Activity	Description	Objectives	Success Indicators	Timeline
Quarterly Parent Seminars	Topics: Understanding Gaming Culture, Setting Healthy Boundaries, Recognizing Problematic Use.	(1) Achieve 40% parent attendance per seminar. (2) Increase parent-reported confidence in managing child's gaming by 25%.	Attendance records; post-seminar feedback; pre-/post-survey results.	Quarterly
Regular Communication Channels	Use of newsletters, parent portals, and messaging apps to share updates and resources.	(1) Reach 90% of parents via at least one channel monthly. (2) Increase two-way communication incidents by 50%.	Message open rates; parent response logs; satisfaction surveys.	Monthly
Home–School Contracts	Agreements on device use, study hours, and gaming limits co-signed by parents, students, and advisers.	(1) Implement contracts for at least 50 at-risk students. (2) Improve adherence to study schedules by 40% among contract signees.	Contract completion rate; adherence monitoring logs; grade improvements.	Months 2–6

D. School Policy Integration

1. **Revision of the Student Discipline & Academic Policy:** Inclusion of a **Digital Wellness Section** with guidelines on:
   - Acceptable device uses during school hours
   - Support protocols for students showing signs of gaming-related academic decline
   - Incentives for balanced digital habits

Success Indicator: Policy draft approved by School Governing Council within 4 months.

2. **Designation of a Digital Wellness Coordinator** to oversee implementation and monitoring.

Success Indicator: Coordinator appointed and operational by Month 2.

E. Monitoring and Evaluation System

Component	Description	Success Indicators
Pre- and Post-Intervention Surveys	Administered to teachers and students to measure changes in perceptions, habits, and strategies.	≥85% response rate; measurable improvements in target constructs.
Academic Tracking	Quarterly grade monitoring for students identified as at-risk.	Reduction in failing grades among at-risk cohort by 20%.
Feedback Mechanisms	Suggestion boxes, focus group discussions, and digital polls.	≥3 actionable insights per quarter integrated into plan adjustments.
Annual Review	Assessment of overall effectiveness and adjustment of strategies.	Comprehensive report with recommendations for Year 2.

IV. Implementation Timeline

Phase	Activities	Duration
Phase 1: Preparation & Training	Developer's workshops, resource workshops, parents' orientation.	2 months
Phase 2: Rollout	Pupil's modules, policy distribution, coaching circles.	3 months
Phase 3: Monitoring & Support	Continuous mentoring, parents' seminar, progress measuring.	6 months
Phase 4: Evaluation & Revision	Data analysis, feedback synthesis, plan modification.	1 month

V. Expected Outcomes

1. Teacher Level: More confidence and variety in supervisory strategies; more use of motivational and preventive strategies.

2. Student Level: Better self-regulation, decreased gaming-related classroom disruptions, increased academic engagement.

3. School Level: Better policy coherence, stronger home–school partnerships, and a culture of digital responsibility.

4. Academic Level: Slow improvement in grade averages, especially for students previously classified as high-frequency gamers.

VI. Allocated Budget

Item	Description	Quantity	Unit Cost (₱)	Total Cost (₱)
A. Personnel & Honoraria				
External Trainer Fees (2 workshops)	2 trainers × 2 days	4 trainer-days	3,000	12,000
Digital Wellness Coordinator Stipend	6-month contract	1	5,000/month	30,000
B. Materials & Resources				
Printed Modules & Worksheets	500 sets	500	50	25,000
Gamification Kits (badges, trackers)	30 classrooms	30	300	9,000
Parent Seminar Kits	200 attendees × 4 seminars	800	80	64,000

C. Venue & Logistics				
Workshop Venue Rental	2 days	1 venue	2,000/day	4,000
Seminar Snacks & Meals	250 pax × 4 events	1,000	150	150,000
D. Contingency Fund	Unforeseen expenses	1 lump sum	—	20,000
GRAND TOTAL				**₱314,000**

Note: Budget assumes in-kind support from the school for existing facilities and administrative personnel.

VII. Sustainability and Scaling

1. Professional Development Inclusion: Yearly mandatory training for educators.

2. Digital Wellness Clubs: Mentorship and advocacy as peers.

3. Regional Dissemination: Presentation of the framework to other schools in Region VI for possible adoption.

This improved intervention plan is not intended to be a singular activity. It is intended to create a systemic, measurable, and sustainable framework to promote digital well-being and academic achievement. The plan will only be successful with the collaborative effort of teachers, students, parents, and administrators of Quezon National High School.

References

1. Alzahrani, A. K. D., & Griffiths, M. D. (2024). Problematic gaming and students' academic performance: A systematic review. *International Journal of Mental Health and Addiction*, 1-34. https://link.springer.com/article/10.1007/s11469-024-01338-5
2. Ateneo de Manila University - Department of Psychology. (2024). *The bidirectional relationship between intensive gaming and emotional regulation in Filipino adolescents* (Research Report No. 2024-03). Ateneo de Manila University.
3. Burns, J. M. (1978). Leadership. Harper & Row.
4. Chen, J., & Qu, H. (2023). Online game addiction and its impact on academic motivation among adolescents. Computers in Human Behavior, *139*, 107534. https://doi.org/10.1016/j.chb.2022.107534
5. Chew, P. K. H., Lim, R. B. T., & Zhang, M. W. B. (2025). The prevalence and correlates of Gaming Disorder in Singapore: A national cross-sectional study. *Journal of Behavioral Addictions, 14*(1), 123-135. https://doi.org/10.1556/2006.2025.00001
6. De La Salle University - College of Science, Department of Psychology. (2024). *Late-night gaming, sleep quality, and academic performance among Filipino senior high school students: A correlational study* (DLSU Research Report No. 2024-07). De La Salle University.
7. Department of Education. (2024). *Digital behaviors and academic achievement: Analysis of gaming frequency and performance ratings in Philippine public high schools* (DepEd Research Report No. 2024-05). Department of Education, Republic of the Philippines.
8. Department of Education. (2023). *Impact assessment of motivational mentoring programs in Philippine public high schools.* Department of Education, Republic of the Philippines.
9. De Vela, K. (2022). An Exploration of the Supervisory Perceptions, Practices and Teachers Assessment of Needs: A Basis for The Formulation of Supervisory Strategies in School. https://www.abacademies.org/articles/an-exploration-of-the-supervisory-perceptions-practices-and-teachers-assessment-of-needs-a-basis-for-the-formulation-of-supervisor-14372.html?utm
10. Easterling, A. (2021). Digital game-based learning: Teacher training, perceptions, benefits, and barriers [Doctoral dissertation, St. Cloud State University]. The Repository at St. Cloud State. https://repository.stcloudstate.edu/edad_etds/95

11. Faílde Garrido, J. M., Dapía Conde, M. D., Isorna Folgar, M., & Braña Rey, F. (2024). Problematic Use of Video Games in Schooled Adolescents: The Role of Passion. *Behavioral sciences (Basel, Switzerland), 14*(11), 992. https://doi.org/10.3390/bs14110992

12. Jain, D. M., Rajaseharan, D., Venugopal, R., Mathew, M., Joy, A., & Goyal, R. (2021). The association between gaming practices and scholastic performance among medical students in India: Case-control study. *JMIR Medical Education, 7*(3), e22235. https://doi.org/10.2196/22235

13. Khumsuk, W., Chaiyasoonthorn, W., & Poonpol, P. (2023). Mobile game addiction and its effects on academic performance among Thai adolescents. *Kasetsart Journal of Social Sciences, 44*(2), 211–219.

14. Ko, C. H., Yen, J. Y., & Wang, P. W. (2024). The impact of intensive gaming on attention-deficit/hyperactivity disorder symptoms and classroom engagement in adolescents: A longitudinal study. *Journal of Attention Disorders, 28*(2), 145-160. https://doi.org/10.1177/10870547231204567

15. Lee, H., & Shin, D. (2023). Beyond screen time: A theory of digital self-control in the age of persuasive technologies. *Computers in Human Behavior, 138,* 107455. https://doi.org/10.1016/j.chb.2022.107455

16. Li, L., Hew, K.F. & Du, J. (2024) Gamification enhances student intrinsic motivation, perceptions of autonomy and relatedness, but minimal impact on competency: a meta-analysis and systematic review. *Education Tech Research Dev* 72, 765–796 (2024). https://doi.org/10.1007/s11423-023-10337-7

17. Macapaz, M. K. S. (2022). Advocating school intervention program among junior high students. *International Journal of Trend in Scientific Research and Development*, 6(3), 463–476. https://www.ijtsrd.com/papers/ijtsrd49567.pdf

18. Mahmud, S., Jobayer, M. A. A., Salma, N., Mahmud, A., & Tamanna, T. (2023). Online gaming and its effect on academic performance of Bangladeshi university students: A cross-sectional study. *Health science reports, 6*(12), e1774. https://doi.org/10.1002/hsr2.1774

19. Moliner, L. (2022). Digital well-being in educational environments: A report on teacher preparedness. *Center for Digital Pedagogy*. https://www.exampleurl.org/digital-wellbeing-report.pdf

20. Mordeno, I. G., Carpio, J., & Saavedra, P. (2023). Validation of DSM-5 internet gaming disorder criteria among Filipino gamers. *Asia-Pacific Psychiatry, 15*(2), e12499. https://doi.org/10.1111/appy.12499

21. National Youth Commission. (2023). *2022 National Youth Assessment Study: Digital behaviors and leisure activities among Filipino adolescents* (Publication No. NYC-2023-004). National Youth Commission, Republic of the Philippines.

22. Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Sciences Education, 15*(5), 625–632. https://doi.org/10.1007/s10459-010-9222-y

23. Pallant, J. (2020). *SPSS Survival Manual: A Step-by-Step Guide to Data Analysis Using IBM SPSS* (7th ed.). Routledge.

24. Philippine Mental Health Association. (2023). *Impact of excessive gaming on adolescent school engagement and emotional regulation: A clinician survey report* (PMHA Publication No. 2023-008). Philippine Mental Health Association.

25. Philippine Normal University - College of Teacher Development. (2023)**.** *Teacher-student relationships as protective factor against gaming distraction: A study of academic resilience among Filipino student gamers* (Research Publication No. 2023-22). Philippine Normal University.

26. Pineda, R. C., Santos, J. L., & Rivera, M. (2023). Gaming addiction and academic disruption among Filipino youth: A psychological perspective. *Philippine Journal of Counseling and Development*, *34*(1), 15–28.

27. Przybylski, A. K., Rigby, C. S., & Ryan, R. M. (2010). A motivational model of video game engagement. *Review of General Psychology*, *14*(2), 154–166. https://doi.org/10.1037/a0019440

28. Ragni, B., Toto, G. A., di Furia, M., Lavanga, A., & Limone, P. (2023, May). The use of Digital Game-Based Learning (DGBL) in teachers' training: a scoping review. In *Frontiers in Education* (Vol. 8, p. 1092022). Frontiers Media SA. https://www.frontiersin.org/journals/education/articles/10.3389/feduc.2023.1092022/full

29. Satapathy, P., Khatib, M. N., Balaraman, A. K., Kaur, M., Srivastava, M., Barwal, A., & Samal, S. K. (2025). Burden of gaming disorder among adolescents: A systemic review and meta-analysis. *Public Health in Practice*, *9*, 100565. https://www.sciencedirect.com/science/article/pii/S2666535224001022

30. Satrial, A., Jaafar, A., Wahana Sari, W., & Yumna, Y. (2023). *Exploring the Impact of Online Gaming on Students' Academic Engagement.* Ahlussunnah: Journal of Islamic Education, 2(2), 63-69. https://doi.org/10.58485/jie.v2i2.208

31. Sun, R. Q., Sun, G. F., & Ye, J. H. (2023). The effects of online game addiction on reduced academic achievement motivation among Chinese college students: the mediating role of learning engagement. *Frontiers in Psychology*, *14*, 1185353. https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2023.1185353/full

32. University of the Philippines - College of Education. (2024). *Teacher-initiated parent engagement and its impact on home-school coordination in the digital learning environment* (Research Report No. 2024-02). College of Education, University of the Philippines.

33. University of San Carlos - Department of Psychology and Education. (2023**).** *Balancing act: Time management strategies of academically successful student gamers in Cebu* (Research Publication No. 2023-14). University of San Carlos.

34. Vázquez-Cano, E., Ramírez-Hurtado, J. M., Díez-Arcón, P., & Pascual-Moscoso, C. (2023). Academic and social behaviour profile of the primary school students who possess and play video games. *Child Indicators Research*, *16*(1), 227-245. https://link.springer.com/article/10.1007/s12187-022-09975-9

35. Weinstein, E., Tench, B., Choukas-Bradley, S., James, C., Buch, E., & Nesi, J. (2023). Teaching digital well-being: evidence-based resources to help youth thrive. *Published online*. https://digitalthriving.gse.harvard.edu/wp-content/uploads/2024/03/Center-for-Digital-Thriving-Teaching-Digital-Well-being.pdf?utm

36. Zheng, Y., Zhang, J., Li, Y., Wu, X., Ding, R., Luo, X., Liu, P., & Huang, J. (2023). Effects of digital game-based learning on students' digital etiquette literacy, learning motivations, and engagement. *Heliyon*, *10*(1), e23490. https://doi.org/10.1016/j.heliyon.2023.e23490

37. Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, *41*(2), 64–70.