Problematic Mobile Gaming Engagement and Motivation Toward Physical Education Among College Students

Carlo Jett J. Anciano

La Consolacion College –Bacolod, Bacolod City Philippines

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ABSTRACT

The increasing popularity of mobile gaming among college students has raised concerns regarding its potential influence on physical activity and motivation toward Physical Education (PE). However, limited empirical evidence exists on the relationship between problematic mobile gaming engagement and PE motivation among Filipino college students. This study aimed to determine the extent of problematic mobile gaming engagement and motivation toward Physical Education, as well as to examine the differences and relationships between these variables among college students in a Private Catholic College in Bacolod City. A descriptive-comparative-correlational research design was employed, involving 267 first- and second-year college students selected through proportionate stratified random sampling from a population of 873 students during the Academic Year 2025–2026. Data were collected using validated and reliable researcher-adapted questionnaires and analyzed using descriptive statistics, the independent samples t-test, Welch's ANOVA, the Mann-Whitney U test, the Kruskal-Wallis H test, and Spearman's rank-order correlation at a 0.05 level of significance. The results revealed that the students exhibited a moderate level of problematic mobile gaming engagement and a high level of motivation toward Physical Education. No significant difference in problematic mobile gaming engagement was found when grouped according to year level; however, significant differences were observed across academic departments. Similarly, motivation toward Physical Education did not significantly differ according to either year level or academic department. Furthermore, no significant relationship was found between problematic mobile gaming engagement and motivation toward Physical Education. The study concludes that college students can maintain a high level of motivation toward Physical Education regardless of their level of mobile gaming engagement, suggesting that other motivational and contextual factors may play a more substantial role in influencing participation in PE activities. These findings underscore the potential value of incorporating gamified instructional strategies and wellness-oriented programs to enhance student engagement in Physical Education within higher education settings.

Keywords: Mobile Gaming Engagement, Motivation toward Physical Education, College Students, Gamification, Physical Education.

INTRODUCTION

Physical Education (PE) is an essential component of higher education, promoting lifelong physical activity, motor competence, and holistic well-being among young adults. Regular participation in PE and physical activity has been shown to reduce the risk of non-communicable diseases, improve mental health, and support academic functioning. These benefits are emphasized in the World Health Organization (WHO, 2020) Global Guidelines on Physical Activity and Sedentary Behaviour, which underscore the importance of engaging in sufficient physical activity while limiting sedentary behavior.

Despite these global recommendations, sedentary lifestyles among college students continue to increase, particularly in higher-education settings. One factor associated with this trend is the growing prevalence of problematic mobile gaming engagement. Unlike recreational gaming, problematic mobile gaming engagement is characterized by excessive or uncontrolled gaming behaviors that may interfere with daily responsibilities, academic performance, social interactions, and health-related activities. Among college students, prolonged gaming sessions, difficulty regulating play time, and prioritization of gaming over other responsibilities have

become increasingly common concerns (Abd Rashid et al., 2020).

The relationship between problematic mobile gaming engagement and physical activity remains inconclusive. Several studies suggest that excessive gaming behaviors may reduce opportunities for physical activity by increasing sedentary time and limiting participation in exercise and recreational sports. Problematic gaming has also been associated with poor time management, disrupted routines, and reduced involvement in health-promoting behaviors.

However, some researchers argue that gaming-related motivational factors, such as achievement, competition, and social interaction, may have implications for participation in other activities, including Physical Education (Ku et al., 2021). These differing findings indicate the need for further investigation into how problematic mobile gaming engagement relates to students' motivation toward Physical Education.

In the Philippine context, these concerns are particularly relevant. Studies report insufficient physical activity and motivational challenges among Filipino college students, alongside increasing manifestations of problematic digital engagement (Cagas et al., 2022). As smartphones become more accessible, some students may be at greater risk of developing problematic gaming behaviors that compete with academic, social, and physical activities. Research conducted in Philippine higher-education institutions likewise reveals variations in students' motivation toward Physical Education, influenced by curriculum design, instructional practices, and personal factors. Despite growing concerns regarding problematic gaming behaviors among Filipino youth, limited research has examined their relationship with motivation toward Physical Education.

The literature reveals several gaps that justify the conduct of the present study. First, there is limited research examining problematic mobile gaming engagement as a multidimensional construct that includes excessive use, loss of control, withdrawal symptoms, and interference with daily functioning. Second, few studies integrate motivational theories to explain how problematic gaming behaviors may relate to students' motivation toward participation in Physical Education. Third, there is a lack of localized research focusing on Filipino college students, particularly those enrolled in private Catholic higher-education institutions that emphasize holistic and values-based education.

This gap is especially evident in one of the Private Catholic Colleges in Bacolod City, where students balance increasing exposure to digital technologies with mandatory Physical Education requirements. Understanding the extent of problematic mobile gaming engagement and its relationship with motivation toward Physical Education is essential in promoting student wellness and supporting balanced lifestyle practices. Therefore, this study aims to determine the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students in one of the Private Catholic Colleges in Bacolod City. The findings may inform context-sensitive PE instruction, curriculum development, and student wellness initiatives that address the realities of problematic gaming behaviors while supporting the holistic development of digitally immersed Filipino college students.

Statement of the Problem

This study aims to determine the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students in one of the Private Catholic Colleges in Bacolod City for academic year 2025-2026.

This study would like to answer the following questions:

1. What is the extent of problematic mobile gaming engagement among college students when taken as a whole and grouped according to:

    a. Year level: and

    b. Department

2. What is the extent of motivation toward Physical Education among college students when taken as a whole and when grouped according to:

    a. Year Level: and

    b. Department

3. Is there a significant difference in the extent of problematic mobile gaming engagement among college students when grouped according to year level, and department?

4. Is there a significant difference in the extent of motivation toward Physical Education among college students when grouped according to year level, and department?

5. Is there a significant relationship between problematic mobile gaming engagement and motivation toward Physical Education among college students?

6. Based on the results of the study, what intervention or enhancement plan may be proposed to promote the integration of gamified learning strategies inspired by mobile gaming experiences among college students?

Hypotheses

The following hypotheses were formulated to guide the investigation:

1. There is no significant difference in the extent of problematic mobile gaming engagement among college students when grouped according to year level and department.

2. There is no significant difference in the extent of motivation toward Physical Education among college students when grouped according to year level and department.

3. There is no significant relationship between problematic mobile gaming engagement and motivation toward Physical Education among college students.

THEORETICAL FRAMEWORK

This study is anchored on the Uses and Gratifications Theory (UGT) developed by Blumler and Katz (1974) and the Self-Determination Theory (SDT) developed by Ryan and Deci (1985, 2000). These theories collectively provide a framework for understanding how mobile gaming engagement may influence college students' motivation toward Physical Education (PE). Uses and Gratifications Theory explains that individuals actively choose specific media platforms because these satisfy particular psychological and social needs. In the context of mobile gaming, college students engage in games to obtain various forms of gratification, particularly entertainment, social interaction engagement, and achievement. Entertainment gratification is experienced when gaming provides enjoyment, relaxation, and relief from boredom or stress. Social interaction engagement occurs when students connect with peers, participate in gaming communities, collaborate with teammates, or compete with others. Achievement gratification is attained when players accomplish goals, progress through levels, earn rewards, and experience a sense of success and mastery. While UGT explains why students engage in mobile gaming, Self-Determination Theory provides an explanation of how these gaming experiences may influence motivation. According to Ryan and Deci (2000), motivation is strengthened when three basic psychological needs are fulfilled: autonomy, competence, and relatedness. These needs are essential in promoting self-determined behavior and sustained participation in activities, including Physical Education.

The entertainment gratification derived from mobile gaming can be linked to the SDT component of autonomy. Students freely choose games based on their interests and preferences, allowing them to experience enjoyment and a sense of personal control. When individuals participate in activities voluntarily and find them enjoyable, they are more likely to develop intrinsic motivation. Similarly, students may become more

motivated in PE when they perceive activities as enjoyable and aligned with their interests. Social interaction engagement in mobile gaming is associated with the SDT component of relatedness. Mobile games often provide opportunities for communication, collaboration, and social connection through multiplayer features and online communities. These interactions satisfy students' need to feel connected and valued by others. Likewise, PE activities that involve teamwork, cooperation, and peer support can foster a sense of belonging, which may enhance students' motivation to participate actively in class. Achievement gratification corresponds to the SDT component of competence. Mobile games frequently present challenges, goals, rewards, and performance feedback that allow players to experience accomplishment and mastery. Such experiences strengthen individuals' confidence in their abilities and encourage continued participation. In PE, students who perceive themselves as capable of successfully performing physical activities are more likely to demonstrate higher levels of motivation and engagement. The integration of UGT and SDT suggests that the gratifications students obtain from mobile gaming may satisfy their psychological needs for autonomy, competence, and relatedness. Specifically, entertainment gratification supports autonomy, social interaction engagement fulfills relatedness, and achievement gratification enhances competence. When these psychological needs are satisfied, students are more likely to develop self-determined motivation that may positively influence their attitudes, participation, and engagement in Physical Education.

Therefore, the present study utilizes Uses and Gratifications Theory to explain the nature of students' problematic mobile gaming engagement and Self-Determination Theory to explain the motivational mechanisms through which gaming experiences may affect motivation toward Physical Education. Together, these theories provide a comprehensive framework for examining the relationship between mobile gaming engagement and PE motivation among college students.

CONCEPTUAL FRAMEWORK

The schematic diagram illustrates the relationship between problematic mobile gaming engagement and motivation toward Physical Education among college students in a private Catholic higher education institution. The respondents are described in terms of their year level and department, which serve as the grouping variables in the study. Problematic mobile gaming engagement is treated as the independent variable, reflecting students' engagement in mobile games, while motivation toward Physical Education is the dependent variable, representing students' level of motivation in PE classes. The diagram illustrates the relationship between problematic mobile gaming engagement (independent variable) and students' motivation toward Physical Education (dependent variable). Based on the interaction between these variables, the study further proposes an intervention plan designed to integrate gamified learning strategies inspired by mobile gaming experiences in order to enhance students' motivation and engagement in Physical Education.

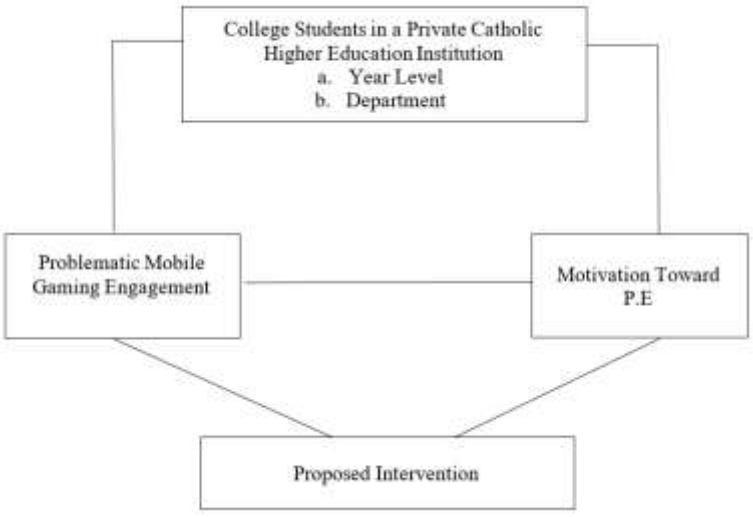

Figure 1. Schematic Diagram on Problematic Mobile Gaming Engagement and Motivation Toward Physical Education among College Students

SCOPE AND LIMITATIONS

This study focused on determining the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students enrolled in selected programs of a Private Catholic College in Bacolod City during the academic year 2025–2026. Based on Raosoft Sample Size Calculator, a total of 267 respondents were selected from a population of 873 students. The study employed a descriptive-comparative-correlational research design to describe, compare, and establish relationships between the variables. Data were gathered using an adapted researcher-made instrument to ensure both reliability and contextual relevance and accuracy. Statistical Analysis included the mean and standard deviation for descriptive statistics, while independent samples t-test, Welch ANOVA, Games–Howell post hoc test, Mann–Whitney U test, Kruskal–Wallis H test, and Spearman rank-order correlation were utilized to determine significant differences and correlations at a 0.05 alpha level of significance.

The findings of this study were limited to the respondents from the selected academic programs and year levels during the specified academic year. Consequently, the results may not be generalized to other institutions, populations, or educational settings beyond the context of the study.

Significance of the Study

This study may benefit various stakeholders by providing insights into the relationship between problematic mobile gaming engagement and motivation toward Physical Education among college students. The findings may contribute to the development of strategies and interventions that promote student well-being, balanced technology use, and active participation in physical activities.

Physical Education Teachers. The findings may provide Physical Education teachers with valuable insights into the extent of problematic mobile gaming engagement among students and its relationship with their motivation toward Physical Education. Such information may help teachers identifying factors that influence student participation and engagement in PE classes. The results may also guide the development of instructional strategies, wellness activities, and motivational approaches that encourage active participation and promote healthy lifestyle practices.

College Students. The results of the study may help students become more aware of their gaming behaviors and the extent to which problematic mobile gaming engagement is present in their daily lives. This awareness may encourage them to develop healthier habits, improve self-regulation, maintain a balance between digital activities and physical activity, and make informed decisions that support their overall well-being and academic responsibilities.

Student Support Services. Guidance counselors, student affairs personnel, and other support-service providers may benefit from the findings by gaining a deeper understanding of problematic mobile gaming engagement among college students. The study may assist them in developing counseling programs, wellness initiatives, and intervention strategies that promote responsible digital behavior, healthy lifestyle choices, and positive student development.

School Administrators. The findings may provide administrators with evidence-based information regarding students' gaming behaviors and motivational characteristics related to Physical Education. These insights may support decision-making in the development of student wellness programs, technology-use initiatives, and institutional policies that foster balanced digital engagement and active lifestyles within the school community.

Curriculum Developers. The results of the study may serve as a reference for curriculum developers in enhancing Physical Education programs and related wellness initiatives. Understanding the characteristics of students who exhibit problematic gaming behaviors may help curriculum planners incorporate relevant motivational and wellness strategies that encourage physical activity and responsible technology use.

Parents / Guardians. The study may provide parents and guardians with a better understanding of problematic mobile gaming engagement and its potential implications for students' daily routines and participation in

physical activities. Such knowledge may help them guide their children in establishing healthy gaming habits, managing screen time effectively, and maintaining a balanced lifestyle.

Policymakers in the Educational and Health Sectors. The findings may serve as a basis for the development of policies, programs, and initiatives that promote responsible digital behavior, student wellness, and physical activity participation among college students. The study may contribute to ongoing efforts to address emerging concerns related to problematic gaming behaviors and their implications for student development and well-being.

Future Researchers. The study may serve as a useful reference for future investigations related to problematic mobile gaming engagement, student motivation, physical activity, and wellness. Future researchers may build upon the findings by examining other populations, educational contexts, or factors associated with problematic gaming behaviors and Physical Education participation.

Definition of Terms

For better understanding, the following terms operationally defined:

College Students. These refer to individuals enrolled in higher education institutions who participate in undergraduate degree programs and engage in academic, social, and developmental experiences within the college environment (Renn & Reason, 2021).

As used in this study, these refer to the first-year and second-year students enrolled in selected academic programs in a private Catholic college in Bacolod City during Academic Year 2025–2026 who served as respondents of the study.

Department. This refers to an academic unit within a higher education institution that is responsible for managing specific disciplines, academic programs, and course offerings under a particular field of study, including curriculum implementation and instructional coordination (Riffe & Pifer, 2026).

In this study, this refers to the academic classification of respondents based on their enrolled college department in the selected Private Catholic College in Bacolod City.

Motivation Toward Physical Education. This refers to the internal and external factors that influence students' willingness, participation, and effort in Physical Education activities (Hu et al., 2021).

In this study, this refers to students' levels of intrinsic motivation, extrinsic motivation, and behavioral regulation toward Physical Education as measured using the adapted PLOC-based questionnaire.

Problematic Mobile Gaming Engagement. This refers to excessive or uncontrolled involvement in mobile gaming that may negatively affect an individual's behavior, academic responsibilities, physical activity, or social functioning (King et al., 2025).

In this study, this refers to the level of excessive and potentially harmful engagement of college students in mobile gaming activities as measured through the adapted Mobile Gaming questionnaire.

Physical Education. This refers to an academic subject that focuses on the development of physical fitness, motor skills, health knowledge, and lifelong participation in physical activity through structured movement and sports-related learning experiences (Corbin, 2020).

In this study, Physical Education refers to the PE course taken by college students, which aims to develop their physical fitness, enhance participation, and promote engagement in physical activities.

Year Level. This refers to the academic standing or classification of students based on their progression in an undergraduate degree program, commonly determined by the number of years completed in tertiary education (OECD, 2020).

In this study, this refers to whether the respondents are classified as first-year or second-year college students in the selected Private Catholic College in Bacolod City.

METHODOLOGY

This study aims to determine the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students in a Private Catholic College in Bacolod City for the Academic Year 2025–2026. This chapter presents the methodological framework of the study, including the research design, profile of respondents, research instruments, data gathering procedures, statistical treatment of data, and ethical considerations. The methodology is designed to ensure that data collection is systematic, valid, and reliable, providing a clear basis for analyzing the relationship between mobile gaming habits and motivation toward Physical Education among the student population.

Design

This study utilized a descriptive, comparative, and correlational research design to determine the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students in one of the Private Catholic Colleges in Bacolod City for the academic year 2025–2026. The comparative research design focused on identifying similarities and differences between groups or variables such as year level and department (Iranifard & Roudsari, 2022), while the correlational research design examined relationships between variables without manipulation (Putri et al., 2025). This method was deemed appropriate since the data gathered from the survey were analyzed to identify both the differences and the associations between problematic mobile gaming engagement and students' motivation toward Physical Education. The design allowed the researcher to describe the behaviors and perceptions of the 267 respondents and to determine whether patterns or relationships existed between the variables, thereby providing essential insights that supported the development of evidence-based instructional strategies in higher education.

Respondents

The respondents of the study were the first-year and second-year students enrolled in the programs under the School of Sciences, Liberal Arts and Teacher Education (SSLATE), School of Architecture, Fine Arts and Interior Design (SAFRAID), School of Hotel and Tourism Management (SHTM), and School of Business and Information Technology (SBIT). The total population of the study consisted of 873 students distributed across the four schools and two-year levels. To determine the appropriate sample size, the Raosoft Sample Size Calculator was utilized. Using a population size of 873, a 5% margin of error, a 95% confidence level, and a 50% response distribution, the required sample size was calculated at 267 respondents. This approach ensured that the sample was sufficiently representative of the target population while maintaining the reliability and accuracy of the research findings. A proportionate stratified random sampling technique was applied in selecting the respondents. The population was divided into strata according to school and year level, and the number of respondents selected from each stratum was proportional to its share in the total population. Participants were then randomly chosen from each stratum to maintain proportional representation and ensure fairness in the selection process.

Through this sampling procedure, the study was able to obtain a balanced and representative group of respondents, thereby enhancing the validity and generalizability of the research findings.

Table 1**:** Distribution of Participants

Program	Year Level	Population (N)	Sample Size (n)	%
SSLATE	1st Year	48	15	5.62%
	2nd Year	21	6	2.25%
	Total	**69**	**21**	**7.87%**
SARFAID	1st Year	165	51	19.10%
	2nd Year	189	58	21.72%
	Total	**354**	**109**	**40.82%**

SHTM	1st Year	196	60	22.47%
	2nd Year	151	46	17.23%
	Total	**347**	**106**	**39.70%**
SBIT	1st Year	70	21	7.87%
	2nd Year	33	10	3.75%
	Total	**103**	**31**	**11.61%**
Grand Total		**873**	**267**	**100%**

Instrument

The primary instrument used in this study was a structured, self-administered questionnaire designed to determine the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students. The questionnaire was developed based on the objectives of the study and was intended to gather quantitative data relevant to the variables under investigation.

The instrument was composed of three major parts. The first part focused on the respondents' demographic profile, which included year level and department affiliation. This section provided background information necessary for describing the characteristics of the respondents and for contextualizing the results of the study.

The second part of the questionnaire measured the respondents' extent of problematic mobile gaming engagement. The instrument was developed based on literature on gaming engagement, problematic gaming behavior, and the Uses and Gratifications Theory. Concepts from the works of Hamari and Sjöblom (2017) provided the theoretical foundation for understanding gaming engagement, while indicators of problematic gaming behavior, such as excessive use, loss of control, withdrawal symptoms, academic interference, and continued play despite negative consequences, were derived from related gaming addiction and problematic gaming literature. Initially consisting of 20 items, the questionnaire underwent content validation and expert review, resulting in the retention of 15 items deemed relevant and essential to the objectives of the study. The final instrument assessed dimensions of problematic mobile gaming engagement, including physical effects, self-control difficulties, emotional responses, behavioral patterns, and the impact of gaming on academic and daily responsibilities.

The third part of the questionnaire measured the respondents' motivation toward Physical Education using the Motivation Toward Physical Education Questionnaire (MTPEQ), which was adapted from the Perceived Locus of Causality Questionnaire (PLOCQ) developed by Goudas, Biddle, and Fox (1994). The original PLOCQ was grounded in the Self-Determination Theory of Deci and Ryan and was designed to assess students' motivational orientations in Physical Education settings.

The adaptation process involved a thorough review of the original PLOCQ items to determine their relevance to the objectives and context of the present study. Initially, items representing various dimensions of motivation, including intrinsic motivation, identified regulation, introjected regulation, external regulation, and amotivation, were examined. Statements that were considered culturally appropriate, understandable, and applicable to the experiences of college students enrolled in Physical Education courses were shortlisted for inclusion.

To enhance clarity and contextual relevance, minor modifications were made to the wording of selected items without altering their original intent or theoretical meaning. Some items were rephrased using simpler language to improve respondents' comprehension, while references that were not directly applicable to the local educational setting were adjusted. The adaptation also incorporated indicators commonly associated with students' participation in Physical Education, such as fitness and health orientation, skill development, enjoyment, social interaction, stress relief, self-challenge, body image, and academic compliance.

The initial pool of items underwent content validation by a panel of experts in Physical Education, educational research, and measurement and evaluation. The validators assessed each item based on its relevance, clarity, and alignment with the study objectives. Based on their recommendations, redundant, ambiguous, and less relevant statements were removed, resulting in a final set of 15 items. The reduction of items was intended to

improve the instrument's content validity, minimize respondent fatigue, and ensure that only the most essential indicators of motivation toward Physical Education were retained.

The final adapted MTPEQ consisted of 15 items that measured both intrinsic and extrinsic motivational factors influencing students' participation in Physical Education classes. The instrument was considered appropriate for assessing the respondents' motivation toward Physical Education within the context of the present study.

The second and third parts of the questionnaire utilized a five-point Likert-type scale to quantify respondents' levels of agreement with each statement. The scale was interpreted as follows: 5 – Strongly Agree, 4 – Agree, 3 – Neutral, 2 – Disagree, and 1 – Strongly Disagree. This scale allowed respondents to express the degree to which each statement reflected their behavior or motivation. The use of a Likert-type scale enabled systematic measurement and facilitated statistical analysis of the data.

Prior to data collection, the instrument underwent content validation by experts to ensure its clarity, relevance, and alignment with the objectives of the study. Necessary revisions were incorporated based on the validators' recommendations. Clear instructions were provided to guide respondents in answering the questionnaire accurately and honestly. The instrument was administered with the assurance that all responses would be treated with strict confidentiality and would be used solely for academic and research purposes.

The following presents the verbal interpretation of mean scores used to describe the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students. Each mean range was assigned a corresponding qualitative description to facilitate a clearer understanding of the respondents' levels of engagement and motivation based on the computed results.

Extent of Problematic Mobile Gaming Engagement among College Students

Mean Range	Verbal Interpretation	Verbal Description
4.21 – 5.00	Very High Extent	Problematic mobile gaming engagement is practiced at a very high extent. Students frequently engage in mobile gaming, indicating that it is a dominant activity in their daily routine.
3.41 – 4.20	High Extent	Problematic mobile gaming engagement is practiced at a high extent. Students often engage in mobile gaming, showing that it is a regular part of their leisure activities.
2.61 – 3.40	Moderate Extent	Problematic mobile gaming engagement is practiced at a moderate extent. Students sometimes engage in mobile gaming, indicating balanced participation with other activities.
1.81 – 2.60	Low Extent	Problematic mobile gaming engagement is practiced at a low extent. Students rarely engage in mobile gaming, suggesting limited involvement in such activities.

1.00 – 1.80	Very Low Extent	Problematic mobile gaming engagement is practiced at a very low extent. Students almost never engage in mobile gaming, indicating minimal or no involvement in the activity.

The following presents the verbal interpretation of mean scores used to describe the level of motivation toward Physical Education among college students. Each mean range is provided with a corresponding qualitative description to facilitate a clearer and more meaningful interpretation of students' motivational levels in relation to their participation in Physical Education activities.

Extent of Motivation Toward Physical Education among College Students

Mean Range	**Verbal Interpretation**	**Verbal Description**
4.21 – 5.00	Very High Extent	Students demonstrate a very high extent of motivation toward Physical Education. They show strong interest, active participation, and consistent enthusiasm in PE activities and learning tasks.
3.41 – 4.20	High Extent	Students exhibit a high extent of motivation toward Physical Education. They are generally engaged, participative, and show positive attitudes toward PE activities.
2.61 – 3.40	Moderate Extent	Students have a moderate extent of motivation toward Physical Education. Their participation and interest are average, and may vary depending on the activity or situation.
1.81 – 2.60	Low Extent	Students show a low extent of motivation toward Physical Education. They have limited interest and minimal participation in PE activities.
1.00 – 1.80	Very Low Extent	Students demonstrate a very low extent of motivation toward Physical Education. They show little to no interest and rarely engage in PE activities.

Validity

Validity refers to the extent to which a research instrument accurately measures the concept, variable, or construct it is intended to measure. It ensures that the collected data are relevant, appropriate, and capable of addressing the objectives of the study (Rodenas & Menes, 2026). To ensure the scientific merit and content accuracy of the study, the research instrument underwent a rigorous content validation process. A panel of ten (10) subject matter experts from the fields of Physical Education, Sports Science, and Educational Research evaluated the survey items for clarity, relevance, and alignment with the research objectives.

Table 2: Summary of Validators' Ratings on the Content Validity of the Research Instrument

Questionnaire Component	Number of Validators	CVR	Interpretation
Problematic Mobile Gaming Engagement (15 items)	10	0.91	Highly Valid
Motivation Toward Physical Education (15 items)	10	0.91	Highly Valid
Overall Content Validity	**10**	**0.91**	**Highly Valid**

The table presents the summary of the content validation results of the research instrument. The questionnaire was evaluated by a panel of ten (10) experts in the fields of Physical Education, Sports Science, and Educational Research. The instrument consisted of two major components: Problematic Mobile Gaming Engagement and Motivation Toward Physical Education. The validators assessed the relevance, clarity, and alignment of the items with the objectives of the study. The overall Content Validity Ratio (CVR) of 0.91 indicates a high level of agreement among the experts regarding the essentiality of the questionnaire items.

The validation process resulted in a Content Validity Ratio (CVR) of 0.91, which exceeded the minimum acceptable threshold for content validity. This confirms that the instrument adequately measures the constructs of problematic mobile gaming engagement and motivation toward Physical Education among college students. Consequently, the questionnaire was deemed highly valid and appropriate for use in the conduct of the study. Necessary revisions suggested by the validators were incorporated prior to the administration of the instrument.

Reliability

Refers to the consistency and stability of a research instrument in producing similar results when administered repeatedly under comparable conditions (Rodenas, 2025). The internal consistency of the research instrument was established through a pilot test, with results officially certified by the institutional statistician. The data were analyzed using Cronbach's Alpha to determine how consistently the items measure their respective constructs. For Part II (Problematic Mobile Gaming Engagement), the analysis yielded a coefficient of .86, indicating good internal consistency. For Part III (Motivation Toward Physical Education), the instrument achieved a coefficient of .93, reflecting excellent reliability. These results confirm that the scales are highly dependable and suitable for the formal data-gathering phase.

Data-gathering Procedure

The data-gathering procedure for this study was systematically conducted in three major phases—Pre-Survey Phase, Survey Proper Phase, and Post-Survey Phase—to ensure the accuracy, reliability, and ethical conduct of the entire research process.

The Pre-Survey Phase involved all preparatory activities prior to the actual data collection. During this phase, the researcher first sought approval from the Research Ethics Committee and obtained the necessary permission from the administration of the private Catholic college in Bacolod City where the study was conducted. After securing approval, the researcher coordinated with the respective Physical Education instructors to facilitate access to the potential respondents. Before the actual distribution of questionnaires, the researcher utilized an online randomizer to identify and select the respondents who would participate in the study to ensure fairness and random selection. The researcher also conducted instrument validation by presenting the questionnaire to a panel of ten experts for content validation using Lawshe's method. Necessary revisions were made based on the recommendations and feedback of the validators. A pilot test was then conducted among 30 non-actual respondents from another institution to determine the reliability of the

instrument using Cronbach's Alpha. Only after establishing the validity and reliability of the research instrument did the researcher proceed to the next phase.

The Survey Proper Phase focused on the actual data collection process from the 267 selected college students. Prior to administering the questionnaire, the researcher explained the purpose of the study, assured the respondents of the confidentiality of their responses, and secured their informed consent. The survey questionnaire, which consisted of the demographic profile and the two major sections on mobile gaming engagement and motivation toward Physical Education, was distributed through printed copies or secure online forms depending on the convenience and availability of the respondents. Participants were given sufficient time to answer the questionnaire in a non-pressured environment to encourage honest and accurate responses. Throughout the data-gathering process, the researcher closely monitored the administration of the questionnaires to ensure that all responses were properly collected and that the respondents fully understood the items included in the instrument.

The Post-Survey Phase involved the organization, analysis, and interpretation of the collected data. Completed questionnaires were carefully checked for completeness and accuracy before being encoded, tabulated, and processed using appropriate statistical software. The data were analyzed using descriptive statistics such as mean and standard deviation, as well as inferential statistical tests including t-test, Mann-Whitney U-test, and Spearman rho, all set at a 0.05 level of significance. The results were interpreted to determine the level of mobile gaming engagement, the level of motivation toward Physical Education, and the relationship between these variables. Finally, the researcher prepared the presentation of findings, formulated conclusions and recommendations, and ensured that ethical protocols such as participant anonymity, voluntary participation, and confidentiality were strictly observed throughout the entire research process.

Statistical Treatment

The gathered data were subjected to both descriptive and inferential statistical procedures to address the research objectives of the study. All tests of difference and relationship were evaluated using a 0.05 level of significance.

To address Problem No. 1, which sought to determine the extent of problematic mobile gaming engagement among college students, and Problem No. 2, which sought to determine the level of motivation toward Physical Education, descriptive statistical measures were employed. Specifically, the weighted mean and standard deviation were computed. The weighted mean was used to describe the average level of responses for each variable, while the standard deviation was used to indicate the variability or spread of the students' responses around the mean. These descriptive statistics are appropriate because the data were gathered using Likert-type scale questionnaires, which were treated as interval data.

For Problem No. 3, which sought to determine whether there is a significant difference in the extent of problematic mobile gaming engagement among college students when grouped according to year level and department, inferential statistical procedures were employed. When respondents were grouped according to year level, an independent samples t-test was used because the grouping variable consisted of two independent groups only, namely first-year and second-year students, while the dependent variable, mobile gaming, was treated as a continuous composite mean score. Prior to the conduct of the t-test, the assumptions of normality and homogeneity of variances were examined. The Shapiro–Wilk test was used to assess whether the data significantly deviated from normality, while Levene's test for equality of variances was used to determine whether the assumption of homogeneity of variances was satisfied. Since these assumptions were met, the standard independent samples t-test was considered appropriate for testing the difference in problematic mobile gaming engagement according to year level. When respondents were grouped according to department, a comparison across more than two independent groups was required; hence, a one-way analysis of variance (ANOVA) was initially considered appropriate. Before the analysis, the assumptions of normality and homogeneity of variances were likewise assessed. The Shapiro–Wilk test was used to examine the normality of the problematic mobile gaming engagement scores within each department, while Levene's test was used to test the equality of variances across groups. Although the normality assumption was satisfied, the homogeneity of variances assumption was violated. Consequently, instead of the standard one-way ANOVA,

the Welch ANOVA was used as the more robust alternative because it does not assume equal variances across groups. When the Welch ANOVA yielded a significant result, the Games–Howell post hoc test was employed to determine which specific departmental pairs significantly differed from one another, as this post hoc procedure is appropriate when the assumption of equal variances is violated.

For Problem No. 4, which sought to determine whether there is a significant difference in the extent of motivation toward Physical Education among college students when grouped according to year level and department, nonparametric statistical procedures were employed because the data did not fully satisfy the assumptions required for parametric tests. When respondents were grouped according to year level, the Mann–Whitney U test was used. This test was selected because the grouping variable consisted of two independent groups only, namely first-year and second-year students, while the assumption of normality, as assessed using the Shapiro–Wilk test, was violated. In addition, Levene's test for equality of variances indicated that the homogeneity of variances assumption was likewise not satisfied. Since these assumption violations rendered the independent samples t-test inappropriate, the Mann–Whitney U test was used as the more suitable nonparametric alternative for comparing two independent groups. When respondents were grouped according to department, the Kruskal–Wallis H test was used.

This test was selected because the comparison involved more than two independent groups and the assumption of normality, as assessed through the Shapiro–Wilk test, was violated across all departmental groups. Although Levene's test indicated that the variances were not significantly different across groups, the failure of the normality assumption warranted the use of a nonparametric procedure instead of a one-way analysis of variance (ANOVA). The Kruskal–Wallis H test is appropriate for determining whether significant differences exist among three or more independent groups when the data do not meet the assumptions for parametric testing.

For Problem No. 5, to determine the significant relationship between problematic mobile gaming engagement and motivation toward Physical Education among college students, the Spearman rank-order correlation (Spearman's rho) was used. This nonparametric test was employed because the assumption of normality was violated in at least one of the variables, as indicated by the Shapiro–Wilk test. Spearman's rho is appropriate for measuring the strength and direction of association between two variables when the data do not meet the assumptions required for Pearson's correlation.

The results of these statistical treatments served as the basis for the development of a proposed enhancement program. This program is designed to integrate gamified learning strategies inspired by mobile gaming experiences to further enhance students' motivation and engagement toward Physical Education.

Table 3**:** Assumption Testing Procedure for Inferential Statistics

Assumption	**Statistical Test**	**Purpose**	**Decision Rule**	**Interpretation**
Normality	Shapiro–Wilk Test	To determine whether the distribution of scores for problematic mobile gaming engagement and motivation toward Physical Education is normally distributed across groups	$p > 0.05$ = normal distribution; $p < 0.05$ = not normal	If data are normal, parametric tests will be used; if not, nonparametric tests will be applied
Homogeneity of Variances	Levene's Test for Equality of Variances	To determine whether variances of scores are equal across comparison groups	$p > 0.05$ = equal variances; $p <$	If variances are equal, ANOVA/t-test will be used; if not, Welch ANOVA

		(year level and department)	0.05 = unequal variances	or alternative tests will be applied
Normality (Correlation)	Shapiro–Wilk Test	To determine whether variables for correlation analysis are normally distributed	$p > 0.05$ = normal; $p < 0.05$ = not normal	If normal, Pearson r will be used; if not, Spearman rho will be used

The assumption testing procedures presented ensured the appropriateness of the statistical tools used in the analysis of data. The Shapiro–Wilk test was used to assess whether the data followed a normal distribution, while the Levene's Test for Equality of Variances was used to determine the equality of variances across groups.

The decision rules indicated that when all assumptions were satisfied, parametric tests such as the independent samples t-test and one-way analysis of variance (ANOVA) were applied. However, when violations in assumptions were detected, alternative statistical procedures such as Welch ANOVA, Mann–Whitney U test, Kruskal–Wallis H test, and Spearman's rank-order correlation were used. This ensured that the statistical analysis remained valid and appropriate regardless of the distribution of the data.

Ethical Considerations

Prior to the commencement of any participant contact or data collection, this study protocol—including the research narrative, consent form, and survey instrument—was formally submitted to the La Consolacion College Bacolod Institutional Review Board. No research activities began until written IRB clearance was obtained. Any amendments to the protocol or consent materials were likewise submitted for IRB review, and annual continuing-review reports were filed until study closure.

Ethical considerations were strictly observed throughout the conduct of this study to ensure the protection of the participants' rights, dignity, and privacy. Prior to data collection, the researcher sought permission from the college administration and obtained informed consent from all respondents, clearly explaining the purpose, procedures, and voluntary nature of their participation. Respondents were assured that their personal information would remain confidential and that all data gathered would be used solely for academic and research purposes. Anonymity was maintained by avoiding the use of identifying details in any part of the study, and participants were free to withdraw at any stage without any form of penalty. Furthermore, the study adhered to the ethical standards set by the institution and complied with the principles of honesty, transparency, and respect for human participants in educational research.

The study adhered to strict ethical standards regarding confidentiality and data protection. All collected data, whether in printed or digital form, were securely handled throughout the research process. Digital files, including encoded survey responses and datasets, were stored in password-protected and encrypted folders accessible only to the researcher. If online survey platforms (e.g., Google Forms) were used, access was restricted solely to the researcher, and data were downloaded and immediately transferred to secured storage before the online responses were disabled or archived.

Hard copies of questionnaires, consent forms, and other research documents were kept in a locked and secured filing cabinet, accessible only to the researcher. To ensure anonymity, respondents were not required to provide names or any identifying personal information, and all data were reported in aggregated form only. Codes were assigned to responses for data analysis purposes instead of using personal identifiers.

In accordance with institutional policy, all research data were retained for three (3) years after the completion of the study for verification purposes. After the retention period, all physical documents were destroyed through cross-cut shredding, while all digital files were permanently deleted using secure file-deletion methods to ensure complete removal of participant information.Chapter 3

RESULTS AND DISCUSSIONS

This study aimed to determine the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students in one of the Private Catholic Colleges in Bacolod City for academic year 2025–2026. The study utilized a descriptive-comparative-correlational research design to address the research objectives. This chapter focuses on showing, analyzing, and explaining the data collected for this study. It presents the results using statistical methods to describe and understand the information related to the research problem.

The Extent of Problematic Mobile Gaming Engagement among College Students

Table 4: Extent of Problematic Mobile Gaming Engagement Among College Students by Year Level

Year Level	**n**	**Mean**	**SD**
1st Year	147	2.82	0.72
2nd Year	120	2.92	0.75

Legend: Very High Extent (4:21-5:00); High extent (3.41-4.20); Moderate Extent (2.61-3.40); Low Extent (1.81-2.60); Very Low Extent (1.00-1.80).

First-year students (n = 147) obtained a mean score of 2.82 (SD = 0.72), while second-year students (n = 120) obtained a mean score of 2.92 (SD = 0.75). Based on the established scale, both groups fall within the moderate extent category (2.61–3.40). The results indicate that problematic mobile gaming engagement is present among students across both year levels, with second-year students demonstrating a slightly higher level of engagement.

The similarity in mean scores suggests that problematic mobile gaming engagement remains relatively consistent regardless of academic standing. While second-year students recorded a slightly higher score, the difference is minimal, indicating that year level alone may not substantially influence gaming behavior. Instead, factors such as personal interests, social interaction, stress management, and accessibility of mobile devices may play a greater role in shaping gaming habits. This finding supports the work of Chang et al. (2022), who reported moderate gaming engagement among university students, and Sun et al. (2023), who found that increased autonomy may contribute to gaming participation. However, Bin Abdulrahman et al. (2025) and Dave (2025) reported contrasting findings, suggesting that gaming behavior may vary according to academic demands and adjustment experiences.

The Extent of Problematic Mobile Gaming Engagement among College Students

Table 5: Extent of Problematic Mobile Gaming Engagement Among College Students by Department

Department	**N**	**Mean**	**SD**
SARFAID	109	2.97	0.74
SSLATE	21	2.58	0.67
SBIT	31	3.16	0.94
SHTM	106	2.73	0.62

Legend: Very High Extent (4:21-5:00); High extent (3.41-4.20); Moderate Extent (2.61-3.40); Low Extent (1.81-2.60); Very Low Extent (1.00-1.80)

Students from SARFAID (n = 109) obtained a mean score of 2.97 (SD = 0.74), SBIT students (n = 31) recorded the highest mean score of 3.16 (SD = 0.94), and SHTM students (n = 106) obtained a mean score of 2.73 (SD = 0.62), all interpreted as moderate extent. In contrast, SSLATE students (n = 21) obtained a mean score of 2.58 (SD = 0.67), which falls under the low extent category. These results indicate that problematic mobile gaming engagement varies across departments, although most groups exhibit a moderate level of engagement.

Differences in gaming engagement may be associated with variations in academic environment, technological exposure, and student interests. The relatively higher score among SBIT students may reflect greater familiarity with digital technologies, while the lower score among SSLATE students may be influenced by differing academic priorities and leisure preferences. Although variations were observed, the findings suggest that gaming behavior is shaped by a combination of academic and personal factors. This observation is consistent with Shi et al. (2024) and Li et al. (2024a), who emphasized the influence of technology exposure on gaming engagement, while also recognizing the role of individual behavioral and psychological characteristics.

The Extent of Motivation toward Physical Education among college students

Table 6: Extent of Motivation toward Physical Education Among College Students by Year Level

Year Level	**n**	**Mean**	**SD**
1st Year	147	3.95	0.62
2nd Year	120	3.79	0.82

Legend: Very High Extent (4:21-5:00); High extent (3.41-4.20); Moderate Extent (2.61-3.40); Low Extent (1.81-2.60); Very Low Extent (1.00-1.80)

First-year students (n = 147) obtained a mean score of 3.95 (SD = 0.62), while second-year students (n = 120) obtained a mean score of 3.79 (SD = 0.82). Both groups fall within the high extent category (3.41–4.20), indicating that students demonstrate strong motivation toward participation in Physical Education regardless of year level.

The consistently high ratings reflect students' positive attitudes toward Physical Education and their recognition of its benefits to health, fitness, and overall well-being. Although first-year students recorded a slightly higher score, both groups remained highly motivated, suggesting that motivation is sustained throughout the early years of college. This finding aligns with Guan et al. (2023), who emphasized the importance of intrinsic motivation and perceived competence in promoting participation in physical activity. Similarly, Chen & Solmon (2024) highlighted the contribution of engaging instructional practices and supportive learning environments in maintaining students' motivation toward Physical Education.

The Extent of Motivation toward Physical Education among College Students

Table 7: Extent of Motivation toward Physical Education Among College Students by Department

Department	**n**	**Mean**	**SD**
SARFAID	109	3.95	0.62
SSLATE	21	3.69	1.04

SBIT	31	3.82	0.87
SHTM	106	3.85	0.69

Legend: Very High Extent (4:21-5:00); High extent (3.41-4.20); Moderate Extent (2.61-3.40); Low Extent (1.81-2.60); Very Low Extent (1.00-1.80)

All departments obtained mean scores within the high extent category (3.41–4.20). SARFAID students (n = 109) recorded the highest mean score of 3.95 (SD = 0.62), followed by SHTM students (n = 106) with 3.85 (SD = 0.69), SBIT students (n = 31) with 3.82 (SD = 0.87), and SSLATE students (n = 21) with 3.69 (SD = 1.04). These results indicate that students across all departments demonstrate a high level of motivation toward Physical Education. The consistently high motivation across departments suggests that Physical Education is perceived as valuable regardless of students' academic specialization.

While SARFAID students exhibited the highest level of motivation, the differences among departments were relatively small, indicating that students generally appreciate the benefits of physical activity and wellness programs.

This finding supports Garcia (2024), who reported that students in activity-oriented disciplines often demonstrate stronger motivation toward physical activity, as well as Li et al. (2024b), who highlighted the influence of curriculum and learning experiences on student motivation. However, Baharuddin et al. (2023) found that motivation levels may remain similar across academic programs when Physical Education courses are implemented through standardized and student-centered instructional approaches.

Significant Difference in the Extent of Problematic Mobile Gaming Engagement among College Students when grouped according to year level

Table 8: Independent Samples t-Test for Problematic Mobile Gaming Engagement by Year Level

Variable	**t**	**df**	**p**	**Cohen's d**	**Effect Size Interpretation**
Problematic Mobile Gaming Engagement	-1.06	265	.291	-0.13	Small Effect

Results of the independent samples t-test revealed no significant difference in problematic mobile gaming engagement between first-year and second-year students, t(265) = -1.06, p = .291. Since the obtained p-value exceeded the .05 level of significance, the null hypothesis was not rejected. This indicates that students from both year levels exhibit comparable levels of problematic mobile gaming engagement.

The absence of a significant difference suggests that year level has limited influence on students' gaming behavior. Mobile gaming appears to be a common leisure activity among college students regardless of academic standing, possibly due to its accessibility and role in recreation, social interaction, and stress relief.

This finding supports the studies of Lin and Liu (2022) and Lee and Jeong (2024), which reported that gaming engagement is often influenced more by personal and social factors than by demographic characteristics such as year level. The result likewise aligns with the Uses and Gratifications Theory, which posits that individuals engage in media activities to satisfy personal needs and preferences.

Significant Difference in the Extent of Problematic Mobile Gaming Engagement among College Students when grouped according to Department

Table 9: Welch One-Way ANOVA For Problematic Mobile Gaming Engagement by Department

Variable	**F**	**df_1**	**df_2**	**p**	η^2	**Effect Size Interpretation**
Mobile Gaming	4.42	3	64.50	.007	.042	Medium Effect

Note. Welch correction was applied due to violation of the homogeneity of variances assumption.

The Welch ANOVA revealed a significant difference in problematic mobile gaming engagement among departments, $F(3, 64.50) = 4.42$, $p = .007$. Since the p-value is less than the .05 level of significance, the null hypothesis was rejected. The computed effect size ($\eta^2 = .042$) indicates a small-to-moderate effect, suggesting that departmental affiliation contributes to variations in gaming engagement.

The significant difference implies that students' academic environments and program characteristics may influence their gaming behaviors. Variations in academic workload, technological exposure, learning experiences, and peer interactions could explain why some departments reported higher levels of engagement than others. This finding is consistent with Gabrito et al. (2023), who observed differences in digital leisure activities across academic programs, and Cheng et al. (2024), who emphasized the role of academic context in shaping students' technology-related behaviors. The result further suggests that gaming engagement is influenced not only by individual preferences but also by environmental and educational factors.

Significant Difference in the Extent of Problematic Mobile Gaming Engagement among College Students when grouped according to Department

Table 10: Games–Howell Post Hoc Comparisons for Problematic Mobile Gaming Engagement by Department

Comparison	**Mean Difference**	**SE**	**t**	**df**	**p**
SARFAID – SSLATE	0.39	0.16	2.42	30.23	.096
SARFAID – SBIT	-0.19	0.18	-1.03	41.30	.730
SARFAID – SHTM	0.24	0.09	2.60	207.90	.049
SSLATE – SBIT	-0.58	0.22	-2.61	49.80	.056
SSLATE – SHTM	-0.15	0.16	-0.96	27.09	.772
SBIT – SHTM	0.43	0.18	2.41	37.89	.093

Note. Games–Howell procedure was used due to violation of the homogeneity of variances assumption.

The Games–Howell post hoc analysis revealed a significant difference only between SARFAID and SHTM students ($p = .049$), with SARFAID students demonstrating higher problematic mobile gaming engagement. No significant differences were observed among the remaining departmental comparisons, as all corresponding p-values exceeded the .05 level of significance.

The result indicates that differences in gaming engagement are limited to specific departmental groups rather than being evident across all programs. The higher engagement among SARFAID students may be associated with differences in academic schedules, lifestyle patterns, or leisure preferences compared to SHTM students. Similar findings were reported by Mahmud et al. (2023), who noted that gaming behavior varies among particular student groups due to differences in educational experiences and social environments. The outcome suggests that departmental influences on gaming engagement are selective and context-dependent rather than universal.

Significant Difference in the the Extent of Motivation toward Physical Education among College Students when grouped according to Year Level

Table 11: Mann–Whitney U Test for Motivation Toward Physical Education by Year Level

Variable	**U**	**p**	**Rank-Biserial Correlation**
Motivation Toward Physical Education	9898	.086	-0.122

Note. Mann–Whitney U test was used due to violation of normality and homogeneity of variances assumptions.

Results of the Mann–Whitney U test indicated no significant difference in motivation toward Physical Education between first-year and second-year students, U = 9898, p = .086. Since the p-value exceeded the .05 level of significance, the null hypothesis was not rejected. This finding indicates that students from both year levels possess comparable levels of motivation toward Physical Education.

The similarity in motivation levels suggests that students continue to value participation in Physical Education regardless of their academic standing. Motivation may be sustained by factors such as enjoyment, perceived health benefits, skill development, and positive learning experiences rather than by year level alone. This finding supports the work of Fierro-Suero (2022) and Kamal et al. (2024), who emphasized the importance of intrinsic motivation and meaningful learning experiences in promoting participation in physical activity. The result is likewise consistent with Self-Determination Theory, which highlights the role of autonomy, competence, and relatedness in fostering sustained motivation.

Significant Difference in the Extent of Motivation toward Physical Education among College Students when grouped according to Department

Table 12: Kruskal–Wallis H Test for Motivation Toward Physical Education by Department

Variable	**H**	**df**	**p**	**Rank ε^2**
Motivation Toward Physical Education	0.89	3	.827	.003

Note. Kruskal–Wallis H test was used due to violation of the normality assumption.

The Kruskal–Wallis H test revealed no significant difference in motivation toward Physical Education among students from different departments, H(3) = 0.89, p = .827. Since the p-value exceeded the .05 level of significance, the null hypothesis was not rejected. This result indicates that students across departments demonstrate similar levels of motivation toward Physical Education.

The consistency in motivation levels suggests that Physical Education is perceived as valuable and relevant by students regardless of academic specialization. This may reflect the effectiveness of the institution's Physical Education program in providing meaningful and engaging learning experiences across diverse student groups.

The finding supports Ahmed et al. (2024) and Fierro-Suero (2022), who reported that well-designed Physical Education programs can foster comparable motivation among students from different academic disciplines. The result also reinforces the principle of Self-Determination Theory that supportive educational environments contribute to the development of sustained motivation regardless of background or field of study.

Correlation Between Problematic Mobile Gaming Engagement and Motivation Toward Physical Education

Table 13: Spearman Rank-Order Correlation Between Problematic Mobile Gaming Engagement and Motivation Toward Physical Education

Variable	**ρ**	**p**	**Effect Size Interpretation**
Problematic Mobile Gaming Engagement and Motivation Toward Physical Education	-0.02	.804	Negligible Effect

Note. P = Spearman's rho.

Results of the Spearman rank-order correlation revealed no significant relationship between problematic mobile gaming engagement and motivation toward Physical Education, ρ = -0.02, p = .804. Since the p-value exceeded the .05 level of significance, the null hypothesis was not rejected. The correlation coefficient indicates a negligible negative relationship, suggesting that problematic mobile gaming engagement has virtually no practical association with students' motivation toward Physical Education.

The absence of a significant relationship suggests that students' motivation toward Physical Education remains relatively independent of their level of mobile gaming engagement. This implies that participation in mobile gaming does not necessarily diminish or enhance students' interest in Physical Education. Instead, motivation toward Physical Education may be influenced more strongly by factors such as personal interest in physical activity, perceived health benefits, instructional strategies, social support, and the overall learning environment. This finding is consistent with Wachholz et al. (2026), who reported no significant association between problematic gaming and motivation toward physical activity, and Zhang et al. (2026), who emphasized that intrinsic motivation and social support are stronger predictors of Physical Education engagement than gaming behavior. However, Wu et al. (2022) reported a contrasting result, finding that excessive gaming was negatively associated with motivation for physical activity due to increased sedentary behavior. The present finding therefore suggests that, among the respondents of this study, mobile gaming and motivation toward Physical Education function as largely independent aspects of student behavior.

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This Chapter presents the summary of findings, conclusions drawn from the study, and the recommendations based on the results obtained by the researcher.

Summary of Findings

Descriptive analysis revealed that college students demonstrated a moderate extent of problematic mobile gaming engagement when grouped according to year level. Both first-year and second-year students exhibited similar levels of engagement, indicating that gaming behaviors were commonly practiced among students regardless of academic standing.

When evaluated by academic department, data indicated that the majority of departments demonstrated a moderate extent of problematic mobile gaming engagement. However, students from the School of Sciences, Liberal Arts, and Teacher Education showed comparatively lower engagement in mobile gaming than students from the other departments. This outcome suggested that academic specialization and distinct learning environments might influence students' gaming behavior.

Regarding motivation toward Physical Education, the assessment demonstrated a high extent of motivation across year levels. Both first-year and second-year students displayed strong motivation and positive attitudes toward participating in Physical Education activities, indicating that students continued to value the course regardless of their academic progression.

An examination across academic programs further revealed a high extent of motivation toward Physical Education. Although slight descriptive differences were observed among departments, students generally

maintained positive participation, engagement, and interest in Physical Education activities regardless of their specific academic program.

Inferential testing highlighted that there was no significant difference in the extent of problematic mobile gaming engagement among college students when grouped according to year level. This statistical result indicated that year level did not significantly influence students' engagement in mobile gaming activities.

Conversely, the findings showed that a significant difference existed in the extent of problematic mobile gaming engagement among college students when grouped according to department. This implied that students from different academic departments varied in their mobile gaming engagement, potentially due to differences in academic demands, personal interests, and unique learning environments.

Furthermore, comparative analysis confirmed that there was no significant difference in the extent of motivation toward Physical Education among college students when grouped according to year level and department. This indicated that students generally maintained similar levels of motivation toward Physical Education regardless of academic classification or program affiliation.

Ultimately, correlation testing revealed that there was no significant relationship between problematic mobile gaming engagement and motivation toward Physical Education among college students. This suggested that students' engagement in mobile gaming did not directly affect or diminish their motivation toward participating in Physical Education activities.

Conclusions

Based on the finalized data, the study concludes that problematic mobile gaming engagement among college students exists at a moderate extent. This finding implies that while indicators of problematic gaming behaviors are present among the respondents, they are generally reported at a moderate level and should not be interpreted as clinical evidence of gaming disorder. Undergraduates may occasionally exhibit specific indicators—such as difficulty regulating gaming time, preoccupation with digital media, or minor interference with certain academic tasks—yet these behaviors are not pervasive enough to signify deep psychological or behavioral dependence among the respondents.

The study further concludes that institutional year level does not significantly influence problematic mobile gaming engagement. Both first-year and second-year students demonstrate comparable levels of problematic gaming behaviors, establishing that structural academic standing is not a determining factor in student digital immersion.

In terms of department, evidence indicates that academic specialization is closely associated with differences in problematic mobile gaming engagement. These descriptive variations across departments likely reflect contrasting day-to-day academic workloads, specialized learning environments, peer group subcultures, and inherent student interests.

The study also concludes that college students generally possess a high level of motivation toward Physical Education. This robust orientation demonstrates that students clearly recognize the value of Physical Education in promoting long-term physical fitness, physical health, personal development, and overall well-being. Furthermore, the respondents maintain overwhelmingly positive attitudes toward active participation in physical activities regardless of their recreational involvement with digital technologies.

Moreover, insights show that motivation toward Physical Education remains remarkably consistent across both year levels and academic departments. This uniformity suggests that students across diverse academic tracks share homogeneous positive perceptions and motivational orientations toward physical wellness, highlighting the institutional stability and effectiveness of standard PE programs in fostering baseline student engagement.

Furthermore, the study concludes that problematic mobile gaming engagement does not significantly influence students' motivation toward Physical Education. This crucial statistical independence demonstrates that the

presence of problematic gaming habits does not actively degrade or inhibit a student's motivational drive within the PE environment. Concurrently, students appear fully capable of protecting their dedication to physical fitness regardless of their internal recreational gaming habits.

Lastly, the study concludes that promoting responsible digital behavior and sustaining active participation in Physical Education remain vital, interconnected components of holistic student wellness. Although problematic mobile gaming engagement was not found to mathematically diminish motivation toward Physical Education, the findings underscore a distinct opportunity for educational institutions to strengthen proactive wellness initiatives. Developing student-centered PE frameworks that celebrate healthy technology-use boundaries will ultimately encourage balanced lifestyles and comprehensive student development.

Recommendations

Based on the findings and conclusions of the study, several recommendations are proposed to support student wellness, encourage responsible digital behavior, sustain motivation toward Physical Education, and provide directions for future research.

Physical Education teachers are encouraged to continue implementing engaging, student-centered, and interactive instructional strategies that maintain students' high level of motivation toward Physical Education. Since problematic mobile gaming engagement was found not to significantly influence motivation toward Physical Education, teachers may focus on sustaining positive learning experiences that encourage active participation, collaboration, and lifelong appreciation of physical activity. The incorporation of game-inspired elements, such as goal setting, achievement systems, teamwork, and immediate feedback, may further enhance student engagement and enjoyment in PE classes.

College students are encouraged to maintain responsible digital habits and a healthy balance between recreational gaming activities and participation in physical activities. Although the study found that problematic mobile gaming engagement does not significantly affect students' motivation toward Physical Education, practicing effective time management and self-regulation remains important in promoting overall well-being. Students are likewise encouraged to actively participate in Physical Education and wellness-related programs that contribute to their physical, emotional, and social development.

Guidance counselors and student support personnel are encouraged to strengthen wellness initiatives that promote responsible technology use, healthy lifestyle practices, and positive student development. Seminars, workshops, and awareness programs focusing on digital wellness, stress management, and balanced lifestyles may help students develop healthy habits while effectively managing their academic and personal responsibilities. Collaboration between student support services and Physical Education teachers is also recommended to further enhance student wellness programs.

School administrators are encouraged to continue supporting Physical Education and wellness initiatives through the provision of adequate facilities, institutional wellness activities, and professional development opportunities for teachers. Efforts to promote responsible digital behavior and active lifestyles among students should also be strengthened to support their holistic development and overall well-being.

Curriculum developers are encouraged to continuously improve Physical Education programs by incorporating innovative, student-centered, and wellness-oriented learning experiences. Given the high level of motivation toward Physical Education demonstrated by the respondents, curriculum planners may further enhance existing programs by integrating activities that promote lifelong physical activity, healthy lifestyle practices, and responsible digital citizenship. Such initiatives may help ensure that Physical Education remains relevant and responsive to the needs and experiences of contemporary learners.

Parents and guardians are encouraged to support students in maintaining balanced daily routines that allow sufficient time for academics, recreation, physical activity, and family interaction. By promoting responsible digital behavior and encouraging participation in physical and wellness-related activities, parents can help students develop positive habits that contribute to their overall growth and development.

Policymakers in the educational and health sectors are encouraged to continue supporting programs and initiatives that promote student wellness, responsible technology use, and active participation in physical activities. Collaborative efforts among educational institutions, health agencies, and community stakeholders may further strengthen programs that foster healthy lifestyles and balanced digital engagement among college students.

Finally, future researchers are encouraged to conduct further studies on problematic mobile gaming engagement and motivation toward Physical Education using larger samples and diverse educational settings. Future investigations may also explore other factors associated with problematic gaming behaviors, such as academic performance, mental health, lifestyle practices, social relationships, and overall well-being. Moreover, qualitative and mixed-method approaches are recommended to gain deeper insights into students' experiences and perceptions regarding problematic mobile gaming engagement and participation in Physical Education.

Output

This chapter presents the proposed intervention or enhancement plan developed based on the findings, conclusion and recommendation of the study.

Training Plan: BALANCE: Building Active Lifestyles and Balanced Digital Engagement Among College Students

Rationale

The findings of the study revealed that college students demonstrated a moderate extent of problematic mobile gaming engagement and a high level of motivation toward Physical Education. Moreover, the results indicated that there was no significant relationship between problematic mobile gaming engagement and motivation toward Physical Education. These findings suggest that students' motivation toward Physical Education is not directly influenced by their level of problematic mobile gaming engagement.

Despite the absence of a significant relationship, mobile gaming remains a familiar and highly engaging activity among college students. Many students regularly interact with gaming elements such as challenges, rewards, achievement systems, progression levels, teamwork, competition, and goal-oriented tasks. These features are recognized for their ability to sustain interest, encourage participation, and provide immediate feedback. Consequently, the proposed intervention program is not based on a causal link between problematic mobile gaming engagement and Physical Education motivation. Rather, it is grounded on the students' familiarity with gaming mechanics and the potential of these motivational elements to enhance engagement in educational and wellness activities.

Anchored on the principles of Uses and Gratifications Theory and Self-Determination Theory, the intervention program seeks to incorporate selected game-inspired strategies into Physical Education and wellness activities. Specifically, the program aims to promote students' sense of autonomy through meaningful choices, competence through achievable challenges and skill development, and relatedness through collaborative and social activities. By integrating these motivational elements into physical activity programs, the intervention intends to create a more engaging, enjoyable, and student-centered learning environment.

The five-day intervention program is designed to encourage active participation in physical activities, promote healthy lifestyle behaviors, and develop greater awareness of responsible mobile gaming practices. It also aims to assist Physical Education teachers and school personnel in implementing innovative and meaningful wellness initiatives that support students' physical, emotional, and social well-being. Through this approach, students are encouraged to maintain a balanced lifestyle by appreciating the value of physical activity while developing responsible digital habits that contribute to their overall wellness and personal development.

Program Objectives

At the end of the five-day training program, the participants are expected to:

1. Develop awareness regarding responsible mobile gaming habits and balanced digital behavior.
2. Enhance students' motivation and participation in Physical Education activities.
3. Promote physical fitness, teamwork, and healthy lifestyle practices.
4. Encourage positive social interaction and recreational participation among students.
5. Evaluate the effectiveness of wellness and gamified PE activities in improving student engagement.

Training Activities Matrix

Day	Activities	Persons Involved	Budget	Evaluation
Day 1	**Orientation and Awareness Seminar** • Opening Program • Seminar on Responsible Mobile Gaming and Healthy Lifestyle • Pre-Assessment Activity	PE Teachers, Guidance Counselor, Students, Researcher	₱3,000 (Materials, snacks, printing)	Pre-test questionnaire and student participation
Day 2	**Gamified Physical Education Activities** • Interactive PE Games • Team Challenges • Mobile-Game Inspired Physical Activities	PE Teachers, Students	₱4,000 (Sports materials, prizes, snacks)	Observation checklist and participation monitoring
Day 3	**Fitness and Wellness Workshop** • Zumba/Fitness Exercise • Stretching and Conditioning Activities • Wellness Talk on Physical Health	PE Teachers, School Nurse, Students	₱3,500 (Sound system, materials, refreshments)	Fitness participation and reflection activity

Day 4	**Team-Building and Recreational Activities** • Relay Games • Outdoor Recreational Activities • Group Cooperation Activities	PE Teachers, Students, Student Leaders	₱4,500 (Game materials, snacks, certificates)	Group performance and teamwork evaluation
Day 5	**Evaluation and Culminating Activity** • Post-Assessment • Student Reflection Sharing • Awarding and Closing Program	PE Teachers, Researcher, Students, School Administrators	₱5,000 (Certificates, tokens, snacks, printing)	Post-test results and overall program evaluation

Budget Plan (Estimated)

Particulars	**Estimated Cost**
Training Materials and Printing	₱3,000
Sports and Recreational Materials	₱4,000
Snacks and Refreshments	₱6,000
Certificates and Tokens	₱2,000
Miscellaneous Expenses	₱5,000
Total	**₱20,000**

Expected Outcomes

At the end of the training program, students are expected to demonstrate:

1. Improved awareness regarding responsible mobile gaming behavior;
2. Increased participation and motivation toward Physical Education activities;
3. Better teamwork, social interaction, and physical wellness practices; and
4. Greater appreciation of balanced digital engagement and active lifestyle participation.

Informed Consent Form

Research Title: Problematic Mobile Gaming Engagement and Motivation Toward Physical Education among College Students

Principal Investigator: Carlo Jett J. Anciano

Department: Graduate School- MAED Physical Education

Contact Information: carlojett.anciano@lccbonline.edu.ph

Introduction

You are being invited to participate in a research study conducted by Carlo Jett J. Anciano, a graduate student from the Graduate School- Masters of Arts in Education major in Physical Education at La Consolacion College Bacolod. This informed consent form outlines the nature of the study, your rights as a participant, and the ethical principles guiding this research. Please read it carefully and feel free to ask any questions before deciding whether to participate.

Ethical Principles

This research adheres to the highest ethical standards, in alignment with the principles of respect for persons, beneficence, justice, and veracity.

Respect for Persons

- Informed Consent: You are invited to participate voluntarily. This form provides all the necessary information for you to make an informed decision.
- Autonomy and Self-Determination: Your participation is entirely voluntary. You have the right to make decisions about your involvement without coercion or undue influence.
- Protection of Vulnerable Populations: Special care will be taken to protect individuals who may be considered vulnerable, such as minors, pregnant women, or those with cognitive impairments, ensuring their rights and well-being are upheld.

Beneficence

- Maximizing Benefits and Minimizing Risks: This study has been designed to ensure that the potential benefits to participants and society outweigh any risks. Every effort will be made to minimize any discomfort or harm.
- Balancing Risks and Benefits: The risks involved will be carefully balanced against the anticipated benefits, both for you as a participant and for society as a whole.

Justice

- Fair Distribution of Burdens and Benefits: The research will ensure that no group is unfairly burdened or excluded from potential benefits.
- Equitable Selection of Subjects: The process of recruiting participants will be conducted in a fair and equitable manner, without bias or discrimination.

Veracity

- Honesty and Integrity in Research: This research is conducted with full transparency. There will be no intentional deception, and findings will be reported honestly and accurately.
- Avoiding Deception and Misrepresentation: We commit to avoiding misleading or incomplete information, both in this informed consent process and in the dissemination of research results

Purpose of the Research

The purpose of this study is to determine the extent of problematic mobile gaming engagement and motivation toward Physical Education among college students in a Private Catholic College in Bacolod City during the Academic Year 2025-2026. This research seeks to examine whether significant relationship exists between problematic mobile gaming engagement and students' motivation toward Physical Education.

Informed Consent

Elements of Informed Consent

Purpose of the Research

You are being asked to participate in a study that seeks to examine your mobile gaming habits and your motivation toward Physical Education. Your participation will help us better understand the relationship between mobile gaming and students' motivation in Physical Education classes.

Procedures and Potential Risks

If you agree to participate, you will be asked to answer a structured questionnaire that includes questions about your year level, department, mobile gaming, and your motivation toward Physical Education. The duration of the study is expected to be 15 to 20 minutes. There are minimal risks involved, which may include mild discomfort or inconvenience while answering the questionnaire or reflecting on your personal habits. However, you may skip any questions you are not comfortable answering, and all necessary measure will be taken to ensure your safety and comfort. We will take all necessary steps to minimize these risks.

Benefits and Discomforts

The potential benefits of participating include no direct financial or material benefits from participating in this study. Additionally, your participation may contribute to advancing knowledge of how mobile gaming affects students' motivation toward Physical Education, which may help educators to improve teaching strategies and student engagement. You may experience some discomfort, such as slight fatigue or inconvenience while answering the questionnaire, but these are expected to be minimal and short-term.

Alternatives to Participation

Participation in this study is voluntary. If you choose not to participate, there will be no penalty or loss of benefits to which you are otherwise entitled. You may decide not to participate or to withdraw at any time without consequence.

Right to Withdraw

You are free to withdraw from this study at any time, for any reason, without explanation. Should you choose to withdraw, your data will be removed from the study and will not be used in the final analysis.

Confidentiality

The information you provide will be kept strictly confidential. Your data will be anonymized and securely stored. Only the research team will have access to your personal information, and any reports or publications resulting from this research will not include any information that could identify you. Data will be retained for three (3) years after the completion of the study, after which all physical and digital records will be securely destroyed.

Participant Rights

Your participation in this research is entirely voluntary. You have the right to:

- Receive a full explanation of the study before deciding whether to participate.
- Withdraw from the study at any point without penalty.

- Ask questions about the study at any time.
- Decline to answer any question or refuse any procedure without penalty.
- Be informed of any new information that might affect your decision to participate.

Contact Information

If you have any questions about this study, your rights as a participant, or any related concerns, please contact:

Principal Investigator: Carlo Jett J. Anciano

Email Address: carlojett.anciano@lccbonline.edu.ph

Phone Number: 09668311836

If you have any concerns about the ethical aspects of this study, you may contact the Institutional Review Board (IRB) at La Consolacion College Bacolod: +63(34) 4349661 Local 115.

Consent Statement

By signing below, you acknowledge that you have read and understood the information provided in this consent form, and you voluntarily agree to participate in this research study. You will receive a copy of this form for your records.

Participant Name (Printed):

Signature:

Date:

Principal Investigator Signature:

Date: February 13, 2026

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