

Exploring the impact of digital games, social networking site use, and life satisfaction on academic achievement

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ABSTRACT

The study examined which among life satisfaction, digital games, and social networking sites significantly predict academic achievement. It also investigated the extent to which life satisfaction controls for the effects of digital games and SNS use on academic achievement. Standard multiple regression was utilized to determine the relationship between the predictor variables (life satisfaction, SNS, and digital games) and academic achievement, while hierarchical multiple regression was used to examine the effect of life satisfaction on the predictor variables. The results indicated that life satisfaction, digital games, and SNS use jointly predicted academic achievement. Among the three variables, life satisfaction emerged as the strongest predictor of academic achievement followed by digital games and SNS use. The findings further suggests that life satisfaction exerts a controlling influence on the effects of digital games and SNS use on students academic achievement.

INTRODUCTION

Computers are now so widely used that they are considered basic tools in educational institutions and business establishments. This technology supports education and business while also being widely used for leisure and entertainment. Digital gaming (DG) and social network-ing sites (SNS) are major venues for recreation and leisure for students and people who use computers. Digital games are defined as games played on a console, with rules, player ability, and a valued outcome (Wolf, 2001). Kum Tang and Koh (2017) defined social networking sites as web-based virtual communities where users interrelate with face-to-face friends and meet other people with shared interests. Boyd & Ellison (2007) also described SNS as a web-based facility that lets

individuals create a public and semi-public profile in a restricted system, and communicate with different users to whom they are connected. This study is focused on these two forms because of their popularity among young people. Furthermore, many students use SNS during their leisure time and this is supported by Baran (2010). Gettman & Cortijo (2015) stated that students used Online Social Network as a tool for entertainment rather than in education.

In 2016, Kitsantas et al. found that students in higher education in the United States shared some concerns, such as that SNS use can lead to addictive behavior, distraction, privacy threats, emotional health issues, and failure to complete a given work on time. Educators and parents often believe that too much time spent on these digital games and SNS can hinder students' progress. However, studies (Vogel et al. 2006; Junco et al. 2010) have revealed the positive effects of digital games and SNS on the academic achievement of students. They suggested that video games or digital gaming promote students thinking skills and cognitive development. On the other hand, academic achievement can also be attributed to life satisfaction. Life satisfaction refers to a person's subjective evaluation of life based on self-selected standards (Diener et al. 1999) with the domains of family, school, and friends Huebner et al.(1998).

Digital game playing and social networking site use may predict academic achievement for students as suggested by the studies made by Bulbul and Akdogan (2023), Chow (2004), Gilman and Huebner (2005), and Ho et al. (2008). In addition, life satisfaction also predicts academic achievement (Stenstrom et al. 2015, Gilman and Huebner 2005; Chow 2004; Bailey and Miller 1998). Locally, work on SNS and digital gaming shows meaningful links with young people's life satisfaction-related outcomes. Cleofas and Rocha (2021) reported that Filipino college students who experienced unequal or limited internet and social media access also tended to report higher psychological distress, suggesting that digital exclusion can undermine aspects of their overall well-being. De Guzman et al. (2021) found that senior high school students in Metro

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SNS, academic achievement, digital gaming, life satisfaction

Manila used platforms such as Facebook and Twitter in ways that shaped their emotional experiences, with positive online interactions associated with feelings of joy, connection, and satisfaction, and negative experiences linked to loneliness and distress. Together, these studies indicate that both the quality of access and the nature of social media use can either support or diminish young people's emotional well-being and perceived life satisfaction.

Although some studies have explored the effects of digital gaming and SNS use on academic achievement, few studies have examined life satisfaction as a mediator in the effect of digital gaming and SNS use on academic achievement. Since they can predict academic achievement, the researcher would like to assess which among these variables most strongly predicts academic achievement. In addition to that, the researcher will also examine the mediating effect of life satisfaction on the relationship between digital gaming, SNS use, and academic achievement.

Given these considerations regarding the influences of life satisfaction, digital gaming, and SNS use, this study aimed to explore the effects of these variables on the academic achievements to Grade 9 students in School Year 2022-2023. Life satisfaction was treated as mediator in the effect of digital game playing and SNS use on academic achievement (Suldo and Huebner 2004).

The outcome of this study may inform educators and educational administrators on how life satisfaction, SNS use, and digital gaming can be transformed into effective twenty-first-century learning tools. By using these factors, educators may develop instructional and strategic plans that intentionally integrate life satisfaction, SNS use and digital gaming into teaching and learning practices to improve student engagement, well-being, and academic outcomes. The results of this study will help educators and school administrators come up with an effective program for the utilization of SNS use, digital games, and life satisfaction.

The study aimed to determine which among life satisfaction, digital gaming, and SNS use best predicts students' academic achievement and to provide actionable insights for educators and administrators in designing effective learning environments.

Specifically, the study focuses on the following questions:

1. Do digital game playing, social networking site use, and life satisfaction significantly predict students' academic achievement?
2. If the effect of life satisfaction is controlled, do digital game playing and social networking sites use still explain a significant portion of the variance in academic achievement?

MATERIALS AND METHODS

This correlational study focused on the Grade 9 students' digital game playing, social networking site use, and life satisfaction as possible predictors of academic achievement. Standard multiple regression was utilized to discover the relationship between the predictor variables and the dependent variable, while hierarchical multiple regression was used in the analysis of the effect of life satisfaction on the predictor variables. Digital game playing was entered first, followed by SNS use.

Data Collection

The participants were Grade 9 students from NCR, Philippines, comprising 119 students (50 males and 69 females). The participants were selected using a combination of purposive and simple random sampling. Grade 9 students were chosen because they are at an adolescent developmental stage where engagement in digital gaming and social networking sites (SNS) is prevalent, and in which perceptions of life satisfaction are sufficiently developed to provide meaningful responses to the research instruments. Participation in the study was voluntary, and informed consent was obtained from both the students and their parents or legal guardians prior to data collection.

Instruments

The study utilized standardized research instruments that have been widely used and validated in previous studies involving adolescents. These instruments were selected to ensure the validity, reliability, and comparability of the data collected on life satisfaction, digital gaming, and social networking site (SNS) use. All instruments were self-report questionnaires and were administered in English, which is the medium of instruction at the College of Education–Laboratory High School.

Students' life satisfaction was measured using the Multidimensional Students' Life Satisfaction Scale (MSLSS) developed by Scott Huebner (1991). The MSLSS is a standardized instrument designed to assess students' satisfaction across multiple life domains, including family, friends, school, self, and living environment. Validation studies reported moderate to good test–retest reliability, with a coefficient of 0.74, indicating acceptable stability of scores over time.

To measure the time spent playing digital games, the study used the questionnaire developed by Ip et al. (2008). This instrument assesses time spent, resources, attitudes, and playing habits related to computer and video games. The questionnaire reported acceptable internal consistency, with Cronbach's alpha values meeting the acceptable threshold of 0.70, indicating that the items reliably measure gaming-related behaviors and attitudes among students.

To measure time spent using social networking sites (SNS), the study used the questionnaire developed by Teo et al. (1998), which is grounded in the Technology Acceptance Model (TAM). The instrument measures perceived usefulness, perceived ease of use, perceived enjoyment, and dimensions of internet usage behavior. Studies using this instrument reported good internal consistency, with Cronbach's alpha values ranging from 0.80 to 0.90. In this study, the instrument additionally underwent face validity evaluation by English teachers to ensure clarity, relevance, and appropriateness for Grade 9 students.

Content Validity

The content validity of MSLSS, the digital gaming questionnaire, and SNS use questionnaire was assessed with the assistance with the high school English teachers, who evaluated the appropriateness and clarity of the items.

Procedure

Letters to the principal, subject coordinator, year-level coordinator, and parents were sent out seeking their approval and explaining the significance of the research to the institution. The parents of the participants were informed about the survey via the student diary. Students whose parents did not grant

permission to their children were not included as respondents. But for those who allowed their sons and daughters to participate in the assessment, both parents and students were asked to sign a consent and assent forms. The survey questionnaires were distributed using a Google Form among students.

They were instructed to fill out the questionnaires carefully. To encourage honest responses, the participants were told that their answers would be anonymous and there were no right or wrong answers and no time pressure. They were informed that they can withdraw from answering the survey at any time.

Ethical Considerations

The study adhered to the established ethical guidelines of the university for educational research, particularly those governing studies involving minors as participants. Approval to conduct the study was obtained from the concerned school authorities prior to data collection. Participation in the study was voluntary, and no student was coerced or forced to participate. Informed consent was obtained from both the students and their parents or legal guardians after the purpose of the study, the procedures involved, and the participants' rights—including the right to withdraw from the study at any time without penalty—were clearly explained. The confidentiality and anonymity of the participants were ensured throughout the research process. Students' responses were treated with strict confidentiality and were used solely for academic purposes. No identifying information was disclosed, and all collected data were securely stored and accessed only by the researcher.

Data Analysis

Multiple linear regression was used to examine the relationships among digital game playing, social networking site use, life satisfaction, and academic achievement. Hierarchical multiple regression was then applied to determine whether digital game playing and SNS use still significantly predicted academic achievement after controlling for life satisfaction. Data were processed using the Statistical Package for Social Science (SPSS).

RESULTS AND DISCUSSION

Multiple Linear Regression was used to test if life satisfaction, digital game playing, and social networking site use significantly predicted students' academic achievement. The regression model was statistically significant, with $R^2 = 0.088$, $F = 1.290$. This indicates that approximately 2% of the variance in academic achievement was explained by the combined predictors. Life satisfaction positively predicted academic achievement ($\beta = 0.240$), suggesting that higher life satisfaction is associated with better academic performance. SNS use also showed a positive contribution ($\beta = 0.115$), indicating that moderate engagement with social media may be associated with academic performance, possibly because of its educational use. Digital gaming showed a small negative beta coefficient ($\beta = -0.100$), indicating that greater engagement in digital game playing may slightly reduce academic achievement.

Table 1. Model Summary for Multiple Linear Regression

Model	R	R square	Adjusted R square	Std. Error of the estimate	R square change	F change	df 1	df2	Sig F Change
1	0.297	0.088	0.020	2.94005	0.088	1.290	3	40	0.291

Table 2. Multiple Linear Regression Predicting Academic Achievement

Predictor Variable	β	Significance (p)
Life Satisfaction	0.240	0
Digital Gaming	-0.100	0
Social Networking Site	0.115	0

Although the overall variance explained by the model is small, the results revealed that life satisfaction has the strongest positive effect on students' academic achievement, highlighting the importance of emotional and psychosocial comfort in academic performance. The slight negative impact of digital gaming aligns with literature suggesting that excessive gaming may distract from study time, whereas SNS use may serve both social and academic functions.

Table 3. Hierarchical Multiple Regression Predicting Academic Achievement

Step	Predictor variable	R ²	ΔR^2	F	p
1	Digital Gaming, SNS use	0.04	-	-	-
2	Step 1+Life Satisfaction	0.09	0.05	F(3,40)	0.140

Table 4: Model Summary for the Hierarchical Multiple Regression.

Model	R	R square	Adjusted R square	Std. Error of the estimate	R square change	F change	df1	df2	Sig F Change
1	.191 ^a	.036	0-.011	2.98532	0.036	.775	2	41	.467
2	.297 ^b	.088	.020	2.94005	.052	2.273	1	40	.140

Hierarchical multiple regression was used to assess whether the SNS use and digital gaming predicted academic achievement, after controlling for life satisfaction.

Step 1: digital gaming and SNS use were entered as predictors. The model explained 4% of the variance in academic achievement ($R^2 = 0.04$), indicating a small but measurable effect of these variables on students' academic performance.

Step 2: Life Satisfaction was added to the model, increasing the total explained variance to 9% ($R^2 = 0.09$), $F(3, 40)$, $p = 0.140$. This increase shows that life satisfaction contributes additional predictive power beyond digital gaming and SNS use. The R^2 values (4% and 9%) represent the proportion of the total variance in academic achievement explained by the predictor variables at each step of the model. Step 1 isolates the effects of gaming and SNS use, while Step 2 adds life satisfaction to examine its incremental contribution.

The results suggests that psychosocial factors, especially life satisfaction may contribute to academic achievement beyond technology-related attitude. Though the total variance explained is modest, these results highlight the combined effects of well-being and digital behavior on students' performance. Promoting life satisfaction may help support academic performance while monitoring gaming and SNS use may reduce possible negative effects.

The identification of the effect of life satisfaction, digital games, and social networking sites use in predicting the academic achievement of students was the main focus of the study. The independent variables: life satisfaction, digital

games, and SNS use were correlated with the academic achievement of students. In addition, the mediating factor of life satisfaction was explored to determine if life satisfaction alters the effect of DG and SNS in academic achievement.

The use of LS, SNS, and Digital games as tools for advancing learning outcomes has long been proven recognized as potentially beneficial in educational context. This is consistent with the study of Bailey and Miller (1998) in which they determined if college students are more satisfied with their lives if they have active lifestyles and it revealed that a demanding life in college students resulted in higher life satisfaction than those with less demanding ones. While Junco et al. (2010) investigated the effect of Twitter (one type of SNS) on college student engagement and showed that using Twitter in academically related ways could increase student participation and develop good grades, therefore, suggesting that SNS can serve as an effective educational tool when used appropriately. Abrams (2009) on the other hand, studied the frame of mind of video game players concerning academic implications in a case study and showed it could have a positive academic influence.

The result of the study suggests the influence of the aforementioned variables (LS, SNS, and DG) on the academic achievement of students. Of the three, life satisfaction was the most significant predictor of academic achievement, followed by SNS use, then playing Digital Games. The study found that life satisfaction tendencies are directly related to academic achievement (Bailey & Miller, 1998)(Antaramian, 2017), so my findings are consistent with those of other studies. Aside from that, the result also revealed that the life satisfaction appears to influence the relationship between the effect of DG, SNS use and academic achievement of students. This means the presence of life satisfaction influences the academic impact of SNS and DG.

CONCLUSION

The study examined the relationship of life satisfaction, digital gaming, and social networking site use with the Academic Achievement of Grade 9 students and to determine the predicting power of LS, DG and SNS use on academic performance. The findings of this study shared multiple conclusions:

Life Satisfaction and Academic Achievement

Life satisfaction showed the strongest positive contribution to students' academic achievement ($\beta = 0.240$), suggesting that it is a key predictor among the predictors included in the study. This indicates that students who are more satisfied and happy with various aspects of their lives, such as family, friends, school, self, and living environment, tend to perform well academically because they are motivated, emotionally stable, and better able to cope with academic loads. The results highlight the importance of emotional and psychosocial well-being in supporting learning and achievement. Focusing on academic support alone may be insufficient if students' broader life contexts are neglected. School administrators and educators should therefore consider implementing programs that could improve students' life satisfaction, such as counseling services, peer support groups, well-being and mindfulness activities, and family-school collaboration initiatives that create a more supportive environment both at home and in school.

Social Networking Site and Academic Achievement

The use of SNS showed a small but positive predictive effect on academic achievement ($\beta = 0.115$). This suggests that

moderate and purposeful engagement with social networking platforms can support learning through educational collaboration, information sharing, and enhanced communication with peers and teachers. At the same time, excessive and unregulated SNS use may become a source of distraction, underscoring the need for clear guidance and digital literacy programs that promote responsible, balanced, and academically productive use of social media.

Digital Gaming and Academic Achievement

Digital gaming showed a small negative contribution ($\beta = -0.100$) to academic achievement. While gaming can offer cognitive and social benefits, excessive engagement may reduce study time or focus, potentially affecting performance. This finding emphasized the importance of balance between leisure gaming and academic responsibilities. Parents and educators may encourage time management strategies and gaming limits to mitigate the negative effects of playing digital games.

In summary, life satisfaction, digital gaming and SNS use are important predictors of academic achievement among Grade 9 students. Life satisfaction had the strongest positive effect. The findings highlight the need for a holistic approach to education that focuses on learners' emotional well-being, digital life, and academic responsibility to achieve the highest possible learning outcome.

The results contribute to the literature on the efficacy of life satisfaction in increasing the academic achievement of students and also provide a clearer view of the presence of life satisfaction in controlling the effect of Digital Game playing and SNS use in facilitating students' academic achievement. Hence, endorsing life satisfaction as a main tool may turn out to be a valuable scheme to facilitate students' academic achievement.

RECOMMENDATIONS

Based on the findings, the following recommendations are offered:

1. Promote Life Satisfaction. The result suggests that teachers and school administrators should place greater emphasis on teacher-student engagement, parent-teacher and, student-student relationships to support academic achievement.
2. Leverage SNS for Learning: Encourage educators and teachers to incorporate SNS in academically relevant ways to boost student engagement and outcomes. Teachers may use these findings to strengthen the classroom performance of their students.
3. Balance Digital Gaming: Recognize the positive aspects of playing digital games and maintain a healthy balance with academic responsibilities.

Future researchers who wish to further examine the effects of life satisfaction, digital gaming, and SNS use should consider increasing the number of respondents. Following the recommendation of Tabachnick and Fidell, larger samples may improve the stability and interpretability of regression results.

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CONFLICT OF INTEREST

The authors declares no conflict of interest.

CONTRIBUTIONS OF INDIVIDUAL AUTHORS

B.G.O. conceptualized the study, designed the methodology, collected and analyzed the data, interpreted the findings, and wrote and approved the final manuscript.

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