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**Influence of Gaming on Student Behavior and Academic Performance**

***Embedded Project***

**Submitted**

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## INTRODUCTION

The effects of video games on children's psychosocial development remain the focus of debate. Gaming at time one was associated with increases in emotion problems. Violent gaming was not associated with psychosocial changes. Cooperative gaming was not associated with changes in prosocial behavior. Finally, competitive gaming was associated with decreases in prosocial behavior, but only among children who played video games with high frequency. Thus, gaming frequency was related to increases in internalizing but not externalizing, attention, or peer problems, violent gaming was not associated with increases in externalizing problems, and for children playing approximately 8 h or more per week, frequent competitive gaming may be a risk factor for decreasing prosocial behavior. We argue that replication is needed and that future research should better distinguish between different forms of gaming for more nuanced and generalizable insight.

In the domain of media violence, the effects of violent games in players play a major role in analysis of human aggression. There are various models of aggression in specific, from which key ideas are integrated in General Aggression Model (GAM) to provide a framework for understanding how social, psychological and biological factors all of which interact to bring about aggressive behavior. GAM helps in understanding both Short-term process (STP) and Long-term process (LTP).

Short-term process deals with the immediate situation of how media violence effects on aggression whereas, long term process helps in understanding the process of aggressive personality development. STP analyses the factors of media violence which influences the players internal state (cognitive and arousal states), thus leading to aggression. Creation of psychological arousal and increase of aggressive thoughts takes place in playing violent video games.

Video-game playing is popular among college students. Cognitive and negative consequences have been studied frequently. However, little is known about the influence of gaming behavior on IT college students' academic performance. An increasing number of college students take online courses, use social network websites for social interactions, and play video games online. To analyze the relationship between college students' gaming behavior and their academic performance, a research model is proposed and a survey study is conducted. The study result of a multiple regression analysis shows that self-control capability, social interaction using face-to-face or phone communications, and playing video games using a personal computer make statistically significant contributions to the IT college students' academic performance measured by GPA.

## **PROBLEM STATEMENT**

The purpose of this study was to find out how online games affect the students' intellectual capacity in relation to their academic performance and social behavior.

## **OBJECTIVES**

Assessing online gaming addiction in children and adolescents is relevant for several reasons. With regards to developmental psychopathological findings, it appears that addictions tend to have precursors during adolescence. Also, it is relatively common that substance dependencies develop in early adulthood.

Therefore, prevention efforts must be established that target adolescents who have their first experiences with addictive substances and behaviors during their pubescence. During this period of time, adolescents are confronted with a variety of cumulated stressors, such as physical and hormonal changes, as well as shifts in personal value and belief systems.

Parental influence is diminished whereas the peer group gains more importance. Peer pressure may lead to a variety of problems that may eventuate in the development of pathological behaviors, such as chemical and behavioral addictions.

## **REVIEW OF LITERATURE**

### **Gaming frequency, time, and types of gamer**

The gaming frequency and the amount of time spent on playing video games have been studied for years frequently in association with gaming addiction (Daniel Luke King 2012; Ko et al. 2009), psychological constructs (e.g., self-concept clarity, self-control, and flow) (Khang et al. 2013; Lee et al. 2012), negative consequences (e.g., missing school work) (Hellström et al. 2012), and even academic performance or learning outcome (Furió et al. 2013; Ip et al. 2008). Ip et al. (2008) analyzed the relationships between gaming frequency and academic performance among 713 students.

The study found that frequent gamers, who spend more than 2 hours per day playing video games, performed less well than infrequent gamers. Hellström et al. (2012) examined the relationship between gaming time, motives to play, and negative consequences because of playing Massively multiplayer online role-playing games (MMORPGs). They recruited 7,757 Swedish adolescents and had them completed a questionnaire and found that time spent on gaming was related to negative consequences, e.g., “less sleep due to gaming.” Ventura et al. (2012) constructed an online survey with 252 undergraduate students and a positive indication was found between video gameplay and academic performance. That is, students who spent 11-50 hours playing video games had significantly higher GPAs than students who spent 0-10 hours playing video games.

Types of gamers are associated with the frequency and amount of time a player has spent on playing video games. However, the segmentation between types of gamers has not been significantly, rigorously studied. Two types of gamers, casual and hardcore gamers, have been growing rapidly in recent years. Kuittinen et al. (2007) discussed the characteristics and differences between casual and hardcore gamers. For example, hardcore gamers play extremely competitive games and require a much higher degree of involvement than casual gamers.

## **Gaming genre and platform**

A game genre, a type of games, is classified based on how gamers interact with a game. For example, an action game, e.g., first-person shooters, usually involves physical challenges, which requires gamers to react to the game scenario swiftly to achieve goals or to overcome obstacles. The first book dedicated to computer and game design is the *Art of Computer Game Design* by Chris Crawford (Crawford 1984). He recognizes gaming genres change quickly so a complete taxonomy of gaming genre is difficult to develop. Ventura et al. (2012) investigated the relationship between video gameplay, game genre preference, personality, and GPA with 319 university students.

Both positive and negative relations were found between video game genre preference and academic performance. For example, two significant negative correlations to GPA are social media and shooter types of game. In addition, Ip et al. (2008) found that the number of genres played is associated with academic performance in examinations. That is, gamers who play four or more game genres

generally perform less well in examinations. The electronic devices or systems used to play video games are called video game platforms. The well-known gaming platforms include personal computers, consoles, e.g., Nintendo's Wii, Sony's PlayStation, and Microsoft's Xbox, and even mobile devices, e.g., Android-based and iOS devices. Appel (2012) conducted a study to examine the association between adolescents' computer and Internet activities and computer literacy, knowledge and skills to complete tasks with a computer technology. Two hundred participants were recruited at secondary schools in Austria and hierarchical regression analyses were conducted. The study found that an increase in video game playing on a personal computer was associated with higher scores on computer knowledge.

### **Self-control and flow**

Self-control, sometimes called self-regulation, is the ability to control emotions, anxiety, and behavior to gain possible rewards or avoid punishment (Timpano et al. 2013). LaRose et al. (2003) describe deficient self-regulation as diminishing consciousness of self-control because of lacking awareness and attention to behaviors. Khang et al. (2013) found that self-control affected users' flow and addiction in mobile phones, Internet, and even video games.

A detailed distinction of those psychological factors is beyond the scope of this study; however, it is worth including the factors into our survey questions. Psychological factors, e.g., flow and self-control have been frequently studied in gaming addiction and gaming behaviors. Flow, proposed by Csikszentmihalyi (1991) which has been studied over



30 years, is the mental state of immersion or concentration in an activity. Playing games can give rise to a state of flow which led to the loss of self-consciousness and sense of time (Csíkszentmihályi 1975; Liu et al. 2013).

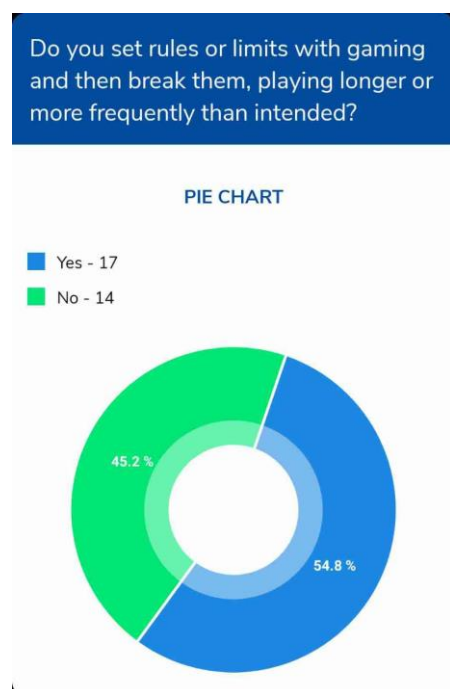
The association between flow and video-game playing has been studied in nascent studies with different findings. For example, it was found that the flow was not related to the amount of time spent on playing video games (Lee et al. 2007) and to online game addiction (Wan et al. 2006). However, Lee et al. (2012) conducted a survey with a sample of 330 students drawn from a university in the northwestern in the U.S. and found that instances of the flow experience were associated to the amount of time spent on gaming.

This literature review attempts to bridge the gap by providing an overview of the existing problem, methods, benefits, challenges, and possible solutions. The hope is that educational administrators, policy-makers, instructors, and decision-makers better understand the complex issues surrounding the educational needs of nontraditional students and how digital games support efforts to improve persistence, access, equity, retention, and persistence to obtain a quality education.

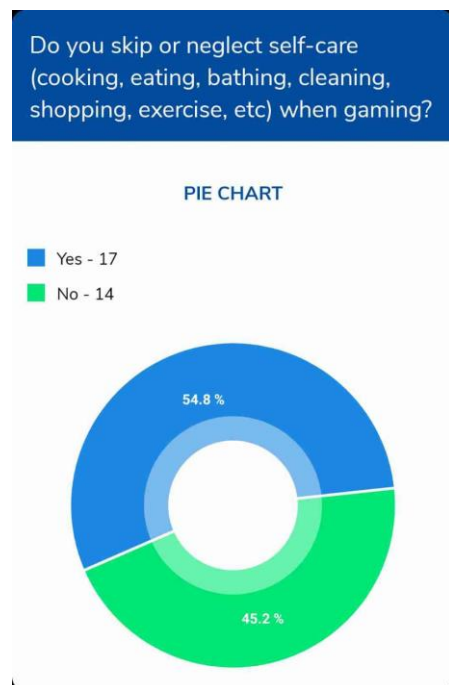
## RESEARCH METHODOLOGY

In this project we used survey as our procedure to analyze the problem statement we have given. Survey is one of the best ways to understand everyone's perspective on a single issue. This method allows us to evaluate the problems overall validity and reliability. Here in this method we created a form with some questions and sent it to various people through social platforms. We got everyone's responses and based on that we modelled pie chart for every question to understand their ideas clearly. Now from this pie chart we will be able to compare everyone's idea on the problem and come to conclusion for the problem statement we have given.

## ANALYSIS AND INTERPRETATION

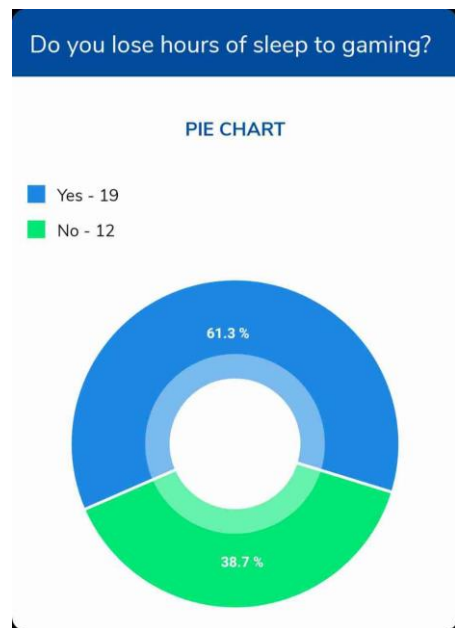


The problem statement is about whether a person has self-control on how much hours he should be playing. From the pie-chart we conclude that most of the people (around 55%) were not able to restrain themselves from playing more hours. As a teen it's completely understandable that we want some stress busters and we get attracted to new and interesting things easily. But everyone should set some boundaries for their well-being.



From the chart we can come to a conclusion that many people (more than 50%) don't care about their health when it comes to gaming all day long. But it's really important for us to care about ourselves for us

to have a better and healthy life. We can't sacrifice the basic essentials for life for games which can be played at any time.

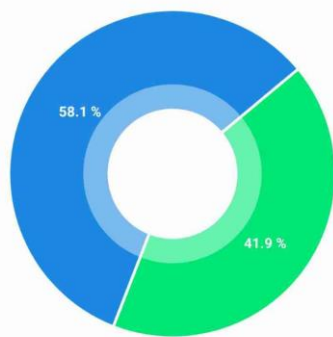


From the chart its clear the almost 65% people don't sleep well because they play all night. This causes many illnesses like stress, lack of concentration and laziness. So, people should try to balance both things and give some rest to their body and mind.

Have you ever sworn off a game, uninstalled it, and later returned to it?

PIE CHART

Yes - 18  
No - 13

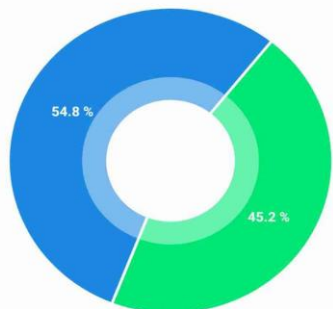


From the survey we see more than 60 % of the people reinstall the game and play it. This simply tells us that they can't find an alternative to come out of the game. People need to set some short time goals which helps them to do some productive work and this will help them to come out that game.

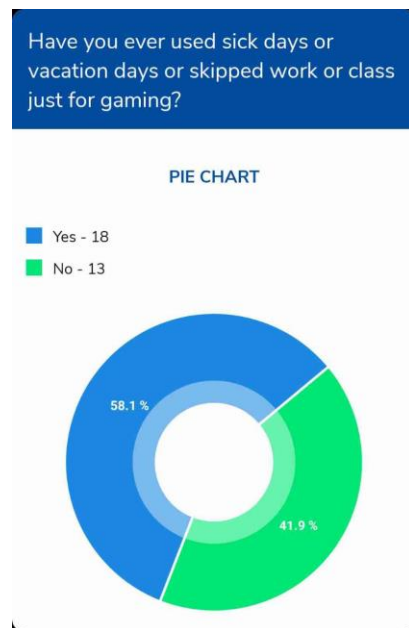
Do you find yourself gaming whenever you have free time?

PIE CHART

Yes - 17  
No - 14



As we can see 55% of the people want to play games in their free time. But sometimes this may lead to addiction so everyone has to be careful about this. But we can spend on something useful which will add some credit to our life.

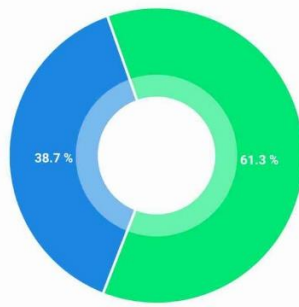


From the chart we can see that it more or less has an equal percentage on yes and no. But most of them skip their vacation days, sick days etc. for gaming which is not good. They won't be able to experience anything if they don't go out and see the real world.

Has your contact with in-person friends and family declined significantly since gaming?

PIE CHART

Yes - 12  
No - 19

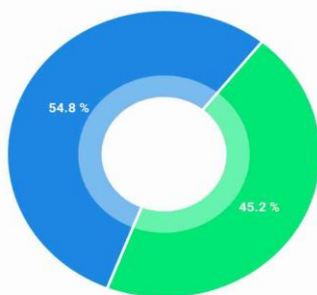


From the chart it's clear that people don't get themselves involved in gaming that much so that their relation with families and friends remain the same. This is a good thing because from this we can see that people care about others and give importance to others than to the game. So, from this we can tell that people can able to overcome their gaming addiction.

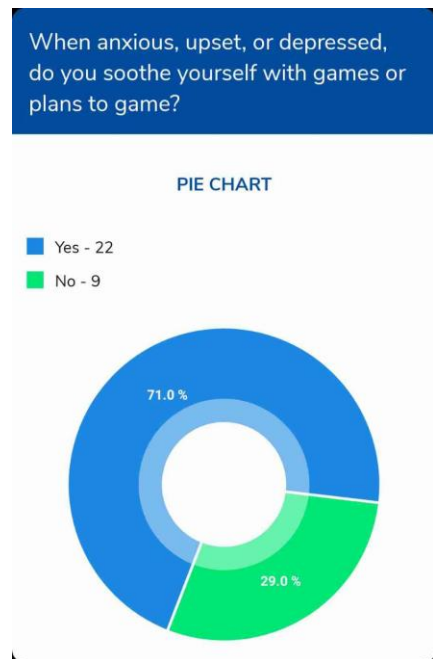
Have you ever taken a break from gaming and binged uncontrollably upon your return?

PIE CHART

Yes - 17  
No - 14



The survey says that people get more involved in gaming after coming back from a break. They just want to binge otherwise they won't concentrate on anything. As said before this leads to many health issues and people have to take care of it otherwise it may lead to many serious issues.



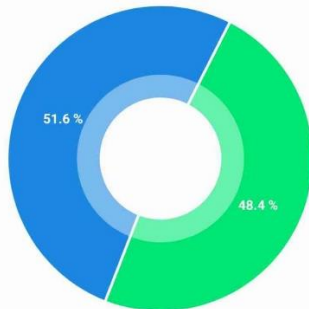
From this survey we can say that nearly 72% of the people just soothe themselves when they are angry or sad or upset about something. This is something good because they were able to overcome their sad feelings and not show it to others. These are some good things for which gaming is used for.



Have you ever felt regret after a gaming binge?

PIE CHART

■ Yes - 16  
■ No - 15



It is clear from the survey that people who binge gaming, regret after it. We can binge game for a day if we want to but not all day and feel guilty about it because that won't do any good. Wasted time never returns so we have to spend it carefully and usefully.

From the charts it's just clear that people get addicted to it and their parents get worried about their children spending more time on gaming than spending time with their family or friends. There are many people who cancel their social plans and also stop taking their responsibilities and late for their work and submissions. Many also lose their hobbies and started playing gaming as their hobby. And from the charts we can see that more than 70% of the people get angry and are not able to control it when someone interrupts them while playing. But nowadays we can see that gaming has become a profession and people earn money out of it. We can play games just as a stress buster and not spend all time on it. It's not like we can't come out of the addiction because 50% (from the pie-charts) of the people were able to control themselves and put some boundaries to it.

From the chart we can conclude that most of the people get addicted to gaming but they can try to overcome it. We can learn some good things from gaming too but gaming is not everything in life.

## **DISCUSSION**

The analysis results show that while self-control, social interaction (i.e., more face-to-face interaction than online interaction), and gaming platform make statistically significant contributions to college students' social behavior, academic performance, other three variables including motivation, gaming frequency, and gaming genres are not playing any statistically significant role with regard to academic performance. The results of our analysis concerning the self-control and gaming platform variable confirm the findings of prior research, which indicate that the more control students have over their academic work, the higher GPA they can achieve.

While the aforementioned findings require more in-depth analysis, the result related to social interaction can implicate that college students who achieve high academic performance use less gaming. It can be justified because gaming usually requires a considerable amount of time and also are less convenient for in-depth communication with colleagues than face-to-face or phone communication methods. Also, the study result related to the gaming platform entails that tech-savvy IT students achieve higher academic performance in IT courses than others.

Technology has had a great influence on every aspect of society and is constantly evolving. Higher education institutions still struggle with how to effectively integrate electronic devices in the classroom to increase student engagement, development, performance, and learning outcomes. The lack of guidance is apparent by the existing gap in research literature that addresses the topic of the use of digital games to engage nontraditional students.

With regards to children and adolescents who are potentially vulnerable to becoming addicted to playing online games, classification is essential because it will help to develop and initiate prevention efforts. Only when online gaming addiction is more clearly and comprehensively understood, can risk variables be targeted and protective factors fostered from a mental health point of view and on a large scale. Among groups of young people, prevention efforts may include both psycho-education as well as provision of information and tools that focus on developing healthy ways of coping with daily stressors. The earlier preventive efforts are initiated, the greater the chance that children and adolescents are protected from the dangers and ramifications of online gaming addiction.

The empirical studies examining online gaming addiction in children and adolescents in this review suffer from a variety of limitations. A major limitation is the frequent lack of sensitivity and specificity of measures used. On the one hand, it appears difficult to judge the extent to which the assessment tools utilized are sensitive enough to actually determine online gaming addiction status within children and

adolescents. Thus, the question of sensitivity remains. On the other hand, it is unclear in how far the measurement instruments used are able to specifically identify adolescents who are not addicted to online gaming. Therefore, problems in the instruments' specificity may arise because the latter appears to be rather limited. In addition, the almost exclusive utilization of self-report measures calls into question the accuracy of diagnosis. Psychological and psychiatric assessments as well as parental reports appear to be indispensable complements for judging whether and to what extent a child or adolescent is actually addicted to online gaming particularly in light of a variety of symptoms that are commonly experienced comorbidly.

## **QUESTIONNAIRE**

Do you set rules or limits with gaming and then break them, playing longer or more frequently than intended?

Do you lose hours of sleep to gaming?

Do you skip or neglect self-care (cooking, eating, bathing, cleaning, shopping, exercise, etc) when gaming?

Do you find yourself gaming whenever you have free time?

Have you ever sworn off a game, uninstalled it, and later returned to it?

Do you often re-live gaming experiences or think about future ones?

Have you ever used sick days or vacation days or skipped work or class just for gaming?

Has gaming taken the place of any hobbies or sports you used to enjoy?

Has your contact with in-person friends and family declined significantly since gaming?

Have you ever taken a break from gaming and binged uncontrollably upon your return?

Do you feel irritable and restless when away from games for some time?

Do you forget or neglect appointments, responsibilities or deadlines in work, school, or family when gaming?

When anxious, upset, or depressed, do you soothe yourself with games or plans to game?

Have you ever skipped real-world social plans that you were looking forward to in order to game more?

Have you ever gamed in inappropriate or unsafe situations (in class, at work, while driving)?

Do you get very angry when someone or something interrupts a game?

Have you ever felt regret after a gaming binge?

Do you hide or lie about your gaming?

Have you ever had a moment when you really wanted to stop gaming to do something else, but just could not?

Do you feel guilt and shame around your gaming?

Do you push your friends to play more than they want to?

Do you make sure you have a mobile gaming device for trips away from home- either long vacations or grocery runs?

Have you ever regretted the amount of money you spent on a game?

Have you stolen anything for gaming?

Do you eat while gaming or forget to eat while gaming?

Are most of your friends gamers?

Are gaming stories the most exciting topics of conversation for you?

Do you read or watch many game-related guides, articles, and videos?

Do you fear a life without gaming?

Do you envy people who can game in moderation?

Do you prefer your game character identity to your own?

Have you stolen money for gaming?

Do you find yourself bored with most everything else in life?

Have you put spending on games ahead of your financial responsibilities?

Have you gained weight since becoming a gamer?

Have you felt remorse after a gaming binge?

Have you suffered any physical pains from intense gaming?

Have you suffered more financial problems since obsessively gaming?

When you want to spend time with friends, do you invite them to game?

Do you get angry and insulting with other players who make mistakes?

Have you tried limiting game time by switching games?

Are the people in your life worried by your gaming?

## CONCLUSION

In this study, we developed a research model based on prior research to investigate the influence of gaming behavior on the academic performance and social behavior of students. The model was tested by using a survey study and the results showed that among independent variables, self-control, social interaction, and gaming platform have emerged to have statistically significant relationships with academic performance and social behavior. There are several limitations evident in this study. First, the research model was tested using a survey, which is a self-report that may include biased answers. Second, the study surveyed only college students and, therefore, it may not be appropriate to generalize the results to the entire population of students. Third, due to time constraints, only one model was reported and tested. To fine-tune our current model, more alternative models and factors need to be tested.