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Online Multiplayer Video Game Play and College Adjustment

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ONLINE MULTIPLAYER VIDEO GAME PLAY AND COLLEGE ADJUSTMENT

by

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ABSTRACT

Online Multiplayer Video Game Play and College Adjustment

by

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The present study expands on research that pertains to the potential positive impacts of online multiplayer video games to determine if online gaming is related to gaming-related metacognitions, perceived levels of social support, and stress in the context of college adjustment amongst freshman students using four different survey measures. All surveys were completed on the participants' own devices. The study included 99 college first-year college students at a university in the Mountain West, 18 years or older, who regularly engage in online multiplayer video games. Participants in the current study (n=99) were made up of 70 males, 25 females, and 1 individual who identified as non-binary. Three participants chose not to answer. Participants were 88.9% White, 11.1% Hispanic or Latino, 4% Asian, 3% American Indian, 3% Black or African-American, and 1% Native Hawaiian or Other Pacific Islander.

Data were analyzed using linear and multiple linear regression for three main research questions. RQ1: What is the relationship between perception of social support in online gaming and stress for students transitioning to college? RQ2: What is the

relationship between metacognitions of online gaming and stress for students transitioning to college? RQ3: How do metacognitions of online multiplayer gaming, perception of social support, and levels of perceived stress, contribute to the overall adjustment of college students?

Results showed that higher levels of online social support were associated with lower levels of stress, negative metacognitions about online gaming were associated with lower levels of academic, social, and personal-emotional adjustment, higher levels of negative metacognitions were associated with higher levels of perceived stress as predicted, and lower levels of stress resulted in better college adjustment. Future researchers may benefit from looking at why students may hold positive views about gaming regardless of perceived stress.

(63 pages)

PUBLIC ABSTRACT

Online Multiplayer Video Game Play and College Adjustment

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There are an increasing number of individuals who participate in multiplayer video games and an increase in screen time overall. Due to the increase in online video game play, this study aimed to find possible positive impacts that online multiplayer video games had on freshmen who are adjusting to college, as this is a pivotal point in life. The data were collected at the beginning of the second semester and 99 freshman, 18 years or older, who regularly engaged in online multiplayer video games participated in the study. The study showed four important findings: First, students who receive support from online gaming experience lower levels of stress. Second, students who think negatively about online gaming tend to have lower levels of college adjustment. Third, higher levels of negative thoughts about gaming are linked to feeling more stressed. Fourth, students who feel less stressed tend to adjust better to college.

ACKNOWLEDGMENTS

Wow. What a crazy journey this has been! I finally have a moment to reflect in my own words on this amazing experience. When I first set out for college, completing a Master's degree seemed like something I could never achieve and so out of reach. Describing this journey as challenging would be an understatement, however, graduate school has been one of the toughest yet most fulfilling adventures I've been on.

I want to take a moment express my heartfelt gratitude to those who supported me along the way. First, Dr. Sarah Tulane, your unwavering support, motivation, and the time you have given me has been invaluable. I truly cannot imagine where I would be without you! Dr. Diana Meter and Dr. Ramy Shaaban, thank you for your encouragement and dedication to helping me throughout this journey and on my project.

To my family, I owe a debt of gratitude that I can never fully repay. My parents have been my rock and the best support system I could ever ask for. Your continued faith and encouragement have allowed me to dream big. I am eternally grateful to both of you and love you. Of course, can't forget about my support dog, Agent you have been a light after all my hard days. Also, shoutout to my Xbox for the stress relief it provided.

To my friends and my partner, you've been through it all with me. I apologize if my moments of breakdown were traumatizing to any of you! From sharing tears to celebrating, the memories we've created together will stay with me forever. Man, finding the words to express my gratitude to everyone has been the hardest part of writing my thesis! What a surprise, huh?

Salina M. Ochoa

CONTENTS

Page

LIST OF TABLES

Page

CHAPTER I

INTRODUCTION

Emerging adulthood is an important developmental period that requires adaptation to change (Arnett, 2014). A combination of greater responsibilities and expanded opportunities may lead to increased stress and decreased mental well-being (Halliburton et al., 2021). Among emerging adults, these changes are often associated with increased anxiety (Halliburton et al., 2021). During this developmental period, individuals are faced with decisions such as starting a family, the start of careers, or continuing with their education (Arnett, 2014).

Though not universally experienced, one of the most significant events occurring during emerging adulthood is the transition to college. The transitional phase into higher education brings unique challenges, including academic demands, social adjustments, and increased autonomy (Leary & DeRosier, 2012; Taylor et al., 2014). Accompanying these changes is a considerable amount of stress that requires effective management and social support to ensure that the transition to college is successful (Compas et al., 1986; Taylor et al., 2014). Social support can be found from many different sources, including online or in-person interactions (Wu et al., 2010).

Along with the typical stressors that come with college, the COVID-19 pandemic impacted the way students were required to interact with technology during school, as most shifted to online learning (Hu et al., 2022). Due to the mandatory use of technology for educational purposes, students also used more technology for social interactions and leisure to alleviate stress and anxiety (Pallavicini et al., 2022). Among various

technological choices accessible to young adults, video games were found to be a favored option among young adults throughout the lockdowns (Pallavicini et al., 2022). A significant factor contributing to the popularity of video games during this period was its capacity to offer social closeness at a time when physical interactions were restricted (Marston & Kowert, 2020; Trepte et al., 2012); this social closeness can be achieved using online multiplayer games.

Video games are a diverse form of media. They provide various forms of interactions and genres that cater to the player's preferences and desires. There are two primary modes of interaction in gaming, single-player and multiplayer. The Marvel Spider-Man game, for example, is a single-player game that can be played offline. This game mode allows the player to complete tasks on their own (Barr & Copeland-Stewart, 2021). Online multiplayer games, such as Fortnite and Call of Duty, feature multiplayer modes that enable players to communicate through headsets and collaborate as a team, bringing more of a social element to gaming (Barr & Copeland-Stewart, 2021).

There are discussions about gender representation and dynamics in the realm of gaming. Within the gaming community, it has been recognized that the majority of gamers are male (Leonhardt & Overå, 2021). As gaming culture has evolved, research has highlighted the role of women in gaming more than it has been in the past. The relationship between gender and gaming cannot be easily categorized into traditional views of masculine and feminine. There is a complex intersection between gender and gaming, challenging the previously simplistic understanding that gaming is a masculine form of media (Shaer et al., 2017).

In light of the growing insights on gaming, rapid technological advancements, and evolving educational environments, it is crucial to examine how this technology plays a role in the lives of college freshmen. The limited existing research on video games and the transition to college highlights the importance of looking deeper into this subject (Desai et al., 2021; Taylor, 2021). The theory that the present study will use to help determine why students engage in online multiplayer video games is the *uses and gratification theory*. Uses and gratification theory offers practical perspectives on how consumers engage with media and the underlying motivations that drive their usage patterns (Ruggiero, 2017). This theoretical lens allows for an examination of an individual's technology habits as well as the underlying reasons behind their decision-making process (Larose et al., 2001).

The purpose of this study is to expand on the research that pertains to the potential positive impacts of online multiplayer video games and to determine if there is an association between online gaming and gaming-related metacognition, perceived levels of social support, and the experience of stress, all within the context of college adjustment among new students. By addressing the following research questions, this study seeks to fill a gap in the literature that focuses on online multiplayer gaming, specifically during college years.

- Research Question 1: What is the relationship between perception of social support in online gaming and stress for students transitioning to college?
    - Hypothesis 1: A higher perception of social support in online gaming will be related to lower levels of stress among students transitioning to college.

- Research Question 2: What is the relationship between metacognitions of online gaming and stress for students transitioning to college?
    - Hypothesis 2: A greater level of positive metacognition of online gaming will be related with reduced stress levels among students transitioning to college while negative metacognitions of online gaming will be related to higher levels of stress among college students.
- Research Question 3: How do the metacognitions of online multiplayer gaming, perception of social support, and levels of perceived stress, contribute to the overall adjustment of college students?
    - Hypothesis 3.1: Positive metacognitions about online multiplayer gaming will be related to greater levels of academic, social, and personal-emotional adjustment, while negative metacognitions about online gaming will be related to lower levels of academic, social, and personal-emotional adjustment.
    - Hypothesis 3.2: Online social support (emotional, social companionship, informational support, and instrumental support) will be related to a positive relationship with academic, social, and personal-emotional adjustment.
    - Hypothesis 3.3: Lower levels of perceived stress from online multiplayer gaming will be positively related to higher levels of academic, social, and personal-emotional adjustment.

CHAPTER II

LITERATURE REVIEW

The transitional period to college or university marks a significant milestone in the lives of many emerging adults. Emerging adulthood spans the age of 18 to 29 (Arnett et al., 2014). This phase, as described by Arnett et al. (2014), encompasses a range of educational pursuits, the potential for postponed family planning, and the navigation towards what is conventionally seen as 'traditional adulthood' (p. 569-570). Within this developmental period, diverse experiences and challenges emerge, as young individuals find their way from the possible restrictions that exist during adolescence into the responsibilities of adulthood. Notably, one of the key aspects of this transitional period is the first step away from the familiarity of one's childhood home. For some, this transition involves moving to complete higher education.

College is an exhilarating and important time for the exploration of various domains, such as social and emotional development (Worsley et al., 2021). The beginning of college is a significant life transition that can lead to growth, but it can also result in self-doubt and anxiety (Hicks & Heastie, 2008). Leaving home and moving to a place with challenging academic pressures and social expectations can be a source of vulnerability and lead to decreased well-being (Worsley et al., 2021). During the transition period, an individual may find it important to adjust the ways in which they receive social support and manage stress to increase their chances of achieving success within the college environment (McNaughton-Cassill et al., 2021). College students' hopes and fears were analyzed by Andrade and Fernandes (2022), to gain a better

understanding of their expectations for college. Many hopes for education centered around the future of being successful in an educational setting, while fears centered on not being able to complete academic goals and not being successful (Andrade & Fernandes, 2022)

Past research suggests that early intervention, including strategies and programs for potential issues or difficulties adjusting, can be beneficial during the first semester of higher education (Worsley et al, 2021). Additionally, effective coping strategies to deal with stress can help students respond to the challenges that come with the transition to college and social support from peers, family, and other adults can help emerging adults thrive in a college setting (Taylor et al., 2014). Experiencing stressful life changes, including transitioning to college, does not necessarily lead to negative long-term outcomes for an individual's mental health and well-being. Instead, these changes can present an opportunity for the development of new stress management processes that can be integrated into the functioning of one's social environment in times of stress (Conley et al., 2013).

One potential stress management tool college students use is gaming (Desai et al., 2021). The present study focuses specifically on multiplayer gaming. Uses and gratification theory is the selected theoretical framework to help explain and understand why students might choose online multiplayer gaming as a form of media during the transition to college.

Uses and Gratification Theory

Uses and gratification theory (U&G) provides valuable insights into how consumers utilize media and the motivations that drive their usage. U&G is built on five key assumptions that help explain how people engage with media (Ruggiero, 2017). First, it suggests that media use is purposeful, and driven by specific goals and intentions. Second, it highlights that individuals actively choose the media that best suits their needs and desires. The third assumption emphasizes that people define their own motivations and gratifications when using media, recognizing the diversity of reasons behind media choices. U&G also acknowledges that different media offer unique communication styles. Finally, the theory indicates the role of social factors in our media choices, recognizing how societal and interpersonal influences shape our decisions (Temel & Ozmelek, 2018). Together, these assumptions provide insight into the complexity of personal motivations, media options, and social factors in shaping our media consumption habits.

Early research on the internet and media using U&G as a foundational framework aimed to explore the frequency of media consumption and the diverse motivations driving it. Researchers sought to understand why individuals turned to media platforms and the gratifications they expected to receive. Importantly, it became evident that these motivations varied significantly among individuals, emphasizing the personalized nature of media usage (Larose et al., 2001). In the context of social media research, a study was conducted to examine the association between metacognition, personality traits, and motivations concerning problematic Facebook utilization. The study built upon prior research that utilized a U&G framework to delve into the rationales behind individuals' Facebook usage, including the desire to establish new friendships and the pursuit of

escapism (Marino et al., 2016). The results of the study suggested that an individual's motives and metacognitive processes for using Facebook can, to a certain extent, be viewed as an indicator of the development of PFU. In other words, an individual's reasons for using Facebook and their self-aware thought processes can significantly contribute to the development of problematic Facebook utilization.

As noted, U&G is used to understand media choices, as well as the gratifications of using specific media. Wu et al. (2010) utilized the U&G approach to examine the various gratifications obtained through playing video games, encompassing aspects such as social interaction and achievement. They found that gratification derived from gameplay serves as a motivating factor for continued gaming. Additionally, players have diverse needs and expectations concerning gaming, which can be better understood through the framework of U&G. Additionally, Sampat and Krishnamoorthy (2016) provided evidence that players were motivated to continue gaming due to factors such as escapism and social interaction.

The interactive nature of multiplayer gameplay among individuals during emerging adulthood, along with its influence on social interaction, indicates the potential utility of U&G as a framework that can explain the role of multiplayer gaming in the transition to college. U&G can provide a lens for examining insights into how individuals in this developmental stage engage in interactive play and the gratifications they seek from it. The U&G approach can be used to analyze the motives and needs of media use, including multiplayer video games, which have been found to induce relaxation as a form of gratification (Ruggiero, 2017). A U&G approach facilitates an understanding of how

the enjoyment derived from multiplayer gaming enhances the presence and satisfaction of social communication experiences during leisure time in college.

U&G provides insight into why individuals consciously choose to engage in gaming activities to fulfill specific cognitive and social needs. It may also shed light on their motivations and the benefits they feel they receive during college adjustment when participating in gaming activities.

Gaming

Over the years, online video games have continued to rise in popularity and have become a prevalent part of the lives of young people (Gandolfi et al., 2021; Kowert et al., 2014). The COVID-19 pandemic marked a crucial moment of expansion for video game play, driving substantial growth and widespread usage within the gaming community (Kim et al., 2020). It is apparent that media holds a notable and significant role in the daily lives of many. To add to that, the portability of gaming consoles may play a role in driving gaming's continued growth. There has been a great upsurge in gaming as a fundamental aspect of leisure and entertainment routines (Brooks et al., 2015).

Among emerging adults, gaming has appeared to be one of the most rapidly expanding sources of entertainment and enjoyment (Padilla-Walker, 2009). It is becoming increasingly common for individuals in this age group to spend several hours per day engaged in gaming as a means of leisure and recreation in to engage with friends (Adachi & Willougby, 2012; Baturay & Toker, 2019).

Beyond entertainment, gaming is also associated with coping and stress management. Finding ways to cope with stress is an essential tool for optimal

development (Zaleski et al., 1998). Some may use video games to cope with stress, finding stress relief through social interaction and distraction while playing. Kowert et al. (2014) surveyed a sample of 570 adolescents under the age of 18, with an average age of 16.44 who played video games. The participants were 71.1% male. The variables measured were the size of social circles (general number of good friends), quality of social circles (level of support and comfort), and social gameplay (online or offline). The researchers found that the level of social interaction within online games had a significant effect on the level of emotional support players perceived to be receiving. Additionally, it affected players' perceptions of support in an online gaming setting. The researchers identified social interaction within multiplayer online gaming as a key predictor for individuals in terms of the support they received and perceived.

An individual's motivation to engage in video games is significantly influenced by their personal metacognitions regarding gaming (Billieux et al., 2013). These metacognitions serve as a lens through which individuals interpret gaming experiences. For instance, whether someone sees gaming as a means to alleviate negative emotions or, conversely, perceives it as a potentially detrimental influence on their life, this plays a key role in determining how they engage with and utilize this form of entertainment (Marino et al., 2016). Therefore, metacognitive viewpoints play a crucial role in determining how individuals' approach and integrate video games into their lives, affecting both their intentions and their results.

Online Multiplayer Gaming

As discussed, it is important to understand how video games fit into gamers' lives. This study focuses on multiplayer online video games as they allow for interactions with

others. Although a form of multiplayer online video games, this study does not include esports gamers. Online multiplayer games are a specific type of video game characterized by their engagement of multiple players and the inclusion of online socialization features (Raith et al., 2021). Online multiplayer games provide a virtual environment in which players from around the world can interact, collaborate, and compete with each other within the game's online capability (Cole & Hooley, 2013). Limited research exists on the relationship between multiplayer gaming and college adjustment (Drummond, 2009; Li et al., 2023; Przybylski & Minshkin, 2016). Therefore, it is important to understand the relation between gaming and adjustment among online multiplayer gamers. Online multiplayer games offer unique features that can enhance social interaction, reduce stress, and increase cooperation, which may differ from the experiences some students may encounter in a college environment. (Li et al., 2023; Przybylski & Minshkin, 2016).

Negative Outcomes Associated with Gaming

For the present study, it is essential to acknowledge that while gaming can provide social enjoyment when used in a healthy manner, unhealthy gaming habits have been associated with antisocial behavior (Shoshani et al., 2021). Much of the research about video gameplay has focused on problematic outcomes such as increased violence and decreased social interaction (Kowert et al., 2014; Padilla-Walker, 2009). A meta-analysis of the impacts of violent video games on physical aggression indicated that when controlling for a baseline of physical aggression, violent video games may affect behaviors beyond the gaming context (Sargent & Hull, 2018).

There is evidence to suggest that some individuals may develop gaming disorder (GD). The World Health Assembly characterized GD as the inability to control time spent

gaming and the inability to function without engaging in the activity (Stevens, 2020). The interruption in daily life must persist for at least 12 months (Stevens, 2020). Those affected by GD may isolate themselves from other activities, neglect self-care, such as personal hygiene, and miss out on real-world opportunities. Previous studies have linked gaming with several adverse consequences, such as a decline in GPA, diminished life satisfaction (Van den Eijnden et al., 2018), heightened levels of aggression (Wang, 2019), and an elevated risk of encountering cyberbullying (Teng et al., 2020).

Individuals can be aware of the adverse impact of gaming on themselves through their metacognitions of gaming. For instance, negative metacognitions exist as an individual's recognition that they continue playing despite recognizing the need to stop, and their lack of control over the extent of their gaming (Akbari et al., 2021). Given the extensive body of research focused on the adverse effects of video game play, there arises a distinct need to examine potential positive outcomes and to further explore the potential benefits individuals might derive from engaging in video games.

Positive Outcomes Associated with Gaming

Acknowledging how individuals engage with gaming is crucial for evaluating the potential benefits it offers in social support and stress relief. It is important to take into account gaming metacognitions to understand how perceptions shape individuals' behavior in the gaming context. Research has shown that online video games can serve as effective tools for facilitating social interactions, leading to improvements in communication skills and collaboration with others (Jones et al., 2014; Trepte et al., 2012). Gaming has been positively associated with an individual's ability to engage in social interactions and work together with others (Barr & Copeland-Stewart, 2021; Carras

et al., 2016). Due to the diverse range of gameplay options and genres available to gamers, studies have indicated a multitude of opportunities for enhancing social support and fostering bonding within the gaming community based on individual needs (Carrasco, 2016; Iacovides & Mekler, 2019). Further, it is important to discuss the factors that promote positive engagement with gaming in modern society because understanding and highlighting these elements contribute to deconstructing stereotypes and encouraging a more informed perspective on gaming.

In contemporary society, video games have become a widespread form of fun and communication. Research is exploring the advantages of video games for individuals experiencing anxiety and depression (Carrasco, 2016; Kowal et al., 2021; Pallavicini et al., 2022). Kowal et al. (2021) found that individuals who experience depression were able to get positive utility from playing games in the form of gratitude, happiness, and social connectedness. Another advantage discussed by Pallavicini et al. (2022) is similar to other forms of entertainment media– that video games provide a temporary escape from real-world difficulties and emotions. Gaming triggers dopamine release, which is associated with pleasure and reward. As a result of the dopamine release, positive emotions like joy can be experienced by the individual, and in turn contribute to well-being (Pallavicini et al., 2022).

Desai (2021) conducted a study in which 80 undergraduate students completed assessments with pre-measurements of blood pressure and heart rate. While being monitored, the students played a video game where they controlled the wind to move a flower. Results showed that playing this video game had comparable effectiveness to meditating for the same period (Desai et al., 2021). The study aimed to reach universities

to enhance their knowledge of ways to support students during times of stress, for example, by providing gaming stations for students to use in between classes. Undergraduate students face a variety of stressors such as academic pressures, home transitions, and financial concerns. According to Desai and colleagues, playing video games can be an effective way to reduce stress.

Because media is diverse and adaptable to different preferences, there are plenty of reasons to examine the ways people benefit from using technology. As the digital age continues to advance and evolve, different forms of media may serve as a safe space for many. Certain findings indicate that some individuals use the Internet to maintain and prolong specific social relationships without the pressures of face-to-face interactions (Padilla-Walker et al., 2009). Although the internet may be used to avoid in-person communication, engaging in multiplayer video games may increase perceived social support, which may result in coping and stress relief during big life changes (Von der Heiden et al., 2019). In an examination of the relationships between gaming and gamer's psychological functioning, Von der Hieden and colleagues (2019) found that one of the strongest associations with gaming was its link to social relationships that could be formed through the game. The authors found that social relationships are developed through gaming by shifting attention from daily challenges and promoting positive emotional experiences with like-minded individuals.

The purpose of this project is to investigate and add to the research on how playing video games during emerging adulthood plays a role in perceived social support and stress during the transition to college.

Gaming Perceptions

The impact of gaming perceptions extends beyond just individual gameplay experiences; it also affects how others perceive these interactions. Research in the field has found an interesting role of third-person bias. Third-person bias suggests that individuals tend to believe that media has a more significant influence on other people than on themselves (Ivory & Kalyanaraman, 2009). In other words, when it comes to gaming, some individuals may think that the media's impact is more substantial on fellow gamers or the gaming community at large than on their personal experiences. Therefore, this third-person bias can offer insight into the interplay between individual perceptions of gaming and the overarching societal attitudes that influence how gamers decide how they participate in their gaming usage (Zhong, 2009).

Gender is another factor frequently examined when looking at perceptions of gaming. Shaer and colleagues (2017) aimed to look at the perceptions that women had of gaming and their experiences with it. Although the gaming community has long been perceived as predominantly male, recent developments indicate a notable shift. A survey conducted by the Entertainment Software Association revealed that 41% of gamers are, in fact, female (Shaer et al., 2017). Furthermore, women aged 18 and older now make up a more significant portion of the gaming community at 31%, surpassing boys aged 18 or younger, who account for 17% (Shaer et al., 2017). As the number of women in the gaming industry continues to rise, there is a recognition of more complexity and diversity of women’s experiences in gaming. Therefore, there is no singular "women's" gaming experience (Shaer et al., 2017).

Metacognitions

Metacognition refers to an understanding and awareness of one's own cognitive processes. It is the capacity to not only recognize our thoughts but also critically assess and reflect upon them. This component of cognition allows individuals to gain insights into their own minds, contributing to improved self-awareness and the ability to make informed judgments about their thoughts and mental processes (Spada & Caselli, 2017).

The integration of gaming as an educational tool represents a forward-thinking educational paradigm that acknowledges the multifaceted advantages it offers in nurturing metacognitive skills. The term ‘serious games’ refers to more simulation-based games that require more thought-provoking actions (Zumbach et al., 2020). This type of gaming has been used to equip learners with an understanding of their cognitive processes, foster adaptability, and prepare them to confront the increasingly complex challenges of the world. As gaming continues to evolve, its potential to be utilized for educational purposes represents a significant shift in a field of study that has often been perceived negatively (Ricker & Richert, 2021; Zumbach et al., 2020).

To better understand how gaming is helping or hindering individuals based on their awareness of the impact, the present study examines the metacognitive aspects of gaming. In college, positive metacognitions about gaming may be associated with individuals gaming in hopes of having a positive emotional and cognitive self-regulation impact, whereas negative metacognitions of gaming may be associated with an individual's inability to stop gaming, as well as gaming-related distractions and time displacement (Caselli et al., 2020). Research has shown that metacognition plays an important role in developing stress-relieving strategies, which are particularly useful

when dealing with changes during college. This suggests that understanding metacognitions of gaming is a crucial aspect when looking at college adjustment (Marino et al., 2016). There is currently very little research examining the metacognitions of gaming and college adjustment.

Social Support

Research indicates that perceived social support can help reduce or even prevent stress during times of transition (Taylor et al., 2013). Consequently, social support becomes critical when adjusting to an unfamiliar environment. Social support may look different for various individuals, as some may have in-person social support, and some may rely on social support from a distance (Helgeson, 2003), which may occur more for college students. While physical proximity is ideal for in-person social support, online video game play is one way to close the distance, and to provide an outlet for support and connection (Trepte et al., 2012).

Video games that incorporate social components, such as cooperative gameplay, generate more enjoyment and produce positive feelings of support. Engaging in cooperative gaming experiences can enhance the overall gaming experience by promoting teamwork, collaboration, and closeness among players. This finding suggests that the social aspects of video games play a crucial role in enhancing player satisfaction and creating a supportive gaming environment (Bowman et al., 2022; Halbrook et al., 2019).

Stress

Stress, a psychological response to life changes, holds substantial relevance in diverse contexts (Wuyun et al., 2023). Individual responses to stressors are shaped by

both the way the events are interpreted and the ability of the individual to respond effectively. Those who believe in their ability and use available resources to cope are more inclined to manage stressors effectively (Baghurst & Kelley, 2013). Thus, stress is an unavoidable occurrence that affects everyone at some point or another; as such, it is essential to identify effective strategies for dealing with it and that will likely vary from person to person (Baghurst & Kelley, 2013).

In researching stress and video game play Banks and Cole (2016) examined individuals who were suffering from stress as a result of military service and found that video games provided an escape from the stress they were experiencing. In addition to providing an escape from stress, playing video games is associated with enhanced mood and positive emotions, which are crucial factors in managing stress (Barr & Copeland-Stewar, 2021; Granic & Engels, 2014).

For undergraduate students, the effective management and mitigation of stress are critical components of their academic journey, as stress continues to be a concern that significantly impacts their educational and social experiences (Desai et al., 2021). When looking at video game play and stress, a study conducted by Desai et al. (2021) emphasized that casual video gameplay can serve as an accessible and easily engaging activity that provides support for students during periods of stress. An online survey concluded that those who played online multiplayer video games for social purposes had significantly lower levels of stress, especially when they played the games moderately rather than excessively (Halbrook et al., 2019; Longman et al., 2009). In essence, to lead a healthy lifestyle, it becomes crucial to identify and implement strategies that can help

alleviate daily stressors, thus promoting a sustainable and balanced lifestyle (Saleh et al., 2017).

After examining the current literature on video games and college, it is apparent that there is a considerable gap in research regarding the association of gaming with college adjustment. Though, as discussed, the existing studies lay a foundation for understanding how gaming can potentially provide stress relief and provide a means of social connections. The previous research has also shed light on how the metacognition of gaming shapes its use, whether positively or negatively. Nonetheless, this area has ample opportunity for new research and understanding. This study seeks to close the gap that is present when understanding the impact gaming has on college adjustment by addressing the following research questions and hypotheses:

Research Question 1: What is the relationship between perception of social support in online gaming and stress for students transitioning to college?

- Hypothesis 1: A higher perception of social support in online gaming will be related to lower levels of stress among students transitioning to college.

Research Question 2: What is the relationship between metacognitions of online gaming and stress for students transitioning to college?

- Hypothesis 2: A greater level of positive metacognition of online gaming will be related to reduced stress levels among students transitioning to college while negative metacognitions of online gaming will be related to higher levels of stress among college students.

Research Question 3: How do the metacognitions of online multiplayer gaming, perception of social support, and levels of perceived stress, contribute to the overall adjustment of college students?

- Hypothesis 3.1: Positive metacognitions about online multiplayer gaming will be related to greater levels of academic, social, and personal-emotional adjustment, while negative metacognitions about online gaming will be related to lower levels of academic, social, and personal-emotional adjustment.
- Hypothesis 3.2: Online social support (emotional, social companionship, informational support, and instrumental support) will be related to a positive relationship with academic, social, and personal-emotional adjustment.
- Hypothesis 3.3: Lower levels of perceived stress from online multiplayer gaming will be positively related to higher levels of academic, social, and personal-emotional adjustment.

CHAPTER III

METHODS

Participants

The present study aims to explore how online multiplayer gaming is related to individuals' perceptions of social support and stress as they navigate the transition to higher education. Given the current prevalence and growth of gaming trends, it is especially important to explore this topic.

The sample includes college freshmen, 18 years or older, currently enrolled at a public university in the Mountain West who regularly engage in multiplayer video games. Although convenience sampling was used, given the critical importance of recruiting individuals with these specific characteristics, it was necessary to strategically recruit, as described in detail in the procedures section below. Exclusion criteria for the present study included those that primarily use single-player games and esport-only gamers. The sample size was determined using a power analysis. A power analysis using Jamovi was conducted for multiple linear regression, indicating that the sample size of 99 is appropriate for 50% statistical power at a significance level of 0.02.

Currently, the freshman class at this university is 5,328. Most (approximately 81%) of the university's students are White, followed by Hispanics of any race. Fifty-five percent of the students are female and 45% are male. The average age for first-time students at the university is 22 years old (Utah State University, n.d). Participants in the current study (n=99) were made up of 70 males, 25 females, and 1 individual who identified as non-binary. Three participants chose not to answer. Participants were 88.9%

White, 11.1% Hispanic or Latino, 4% Asian, 3% American Indian, 3% Black or African-American, and 1% Native Hawaiian or Other Pacific Islander.

Procedures

This research study was approved by the Utah State University Institutional Review Board (IRB). Information about the study was posted and handed out in various high-traffic locations across the university campus. These locations include the main campus student center, student housing areas, library, and the Education building where the gaming team at the university meets. Participants were also recruited via email communication within large introductory undergraduate courses. Study data was collected and managed using REDCap electronic data capture tools hosted at Utah State University (Harris et al., 2009). REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources.

To ensure participant suitability, screener questions along with consent information were included at the beginning of the survey to confirm that participants met the criteria of being college students at a public university in the Mountain West who regularly engage in multiplayer video games. Included in the screener questions were questions such as year in school, age, type of video game engagement (multiplayer or single-player), and how often participants game in a week. From there, the participants completed the self-report measures.

Measures

Metacognitions about Online Gaming Scale

The Metacognitions about Online Gaming Scale (MOGS) is a 12-item measure that provides a self-report of positive and negative metacognitions about online gaming (Spada & Caselli, 2017). Examples of questions for negative metacognitions include "I have no control over how much time I play" and "I continue to play despite I think it would be better to stop", while questions for positive metacognition include "online gaming makes my worries more bearable", and "online gaming reduces my anxious feelings". All questions were on a 4-point Likert scale ("Do not agree," "Agree Slightly," "Agree Moderately," "Agree Very much.") Spada and Caselli (2017) reported psychometric properties indicating predictive validity, as well as a Cronbach's $\alpha = 0.87$ for negative metacognitions about online gaming and 0.81 for positive metacognitions about online gaming. For the current study negative metacognitions had a Cronbach's $\alpha = 0.678$ and positive metacognitions had a Cronbach's $\alpha = 0.799$.

The Online Social Support Scale

The Online Social Support Scale (OSSS) is a scale designed identify the relevant online platforms for their study; the present study focused on online video games. The second part of the scale is used to assess the frequency of events occurring while interacting with others online over the past two months (Nick et al., 2018a). This scale aids in evaluating social support experiences within online gaming environments. Examples of items in this scale include "People show that they care about me online," "When I'm online, people give me useful advice," and "When I'm online, people help me understand my situation better."

Many of the measures in the OSSS primarily target platforms like Facebook (Indian & Grieve, 2014). For the present study, the measure was modified to better suit the context of gaming. This adaptation draws from Gelgoot's (2021) approach, where the scale was adjusted to assess perceptions of online social support from various sources, including college friends, pre-college friends, and virtual friends.

Gelgoot (2021) adjusted the scale questions by rewording them to phrases such as "My virtual friends show that they care about me online" and "When I'm online, my virtual friends give me useful advice." Similarly, questions in this study are adapted to align with online gaming. The questions were modified to read as follows: "My online gaming friends demonstrate that they care about me" and "When I'm gaming, my online gaming friends provide me with useful advice." By making these adjustments, this study aims to ensure that the scale effectively captures the distinction of online social support within the specific domain of online gaming.

In a study conducted by Nick et al. (2018a), the Cronbach's alpha values were high for each factor included in the scale. Specifically, they reported alpha values of $\alpha = .95$ for esteem/emotional support, $\alpha = .94$ for social companionship, $\alpha = .95$ for informational support, and $\alpha = .95$ for instrumental support. For the current study the alpha values for each subscale were, $\alpha = .96$ for esteem/emotional support, $\alpha = .94$ for social companionship, $\alpha = .97$ for informational support, and $\alpha = .93$ for instrumental support.

Perceived Stress Scale

The Perceived Stress Scale (PSS) is a scale consisted of 10 items designed to evaluate an individual's subjective assessment of their own stress levels (Cohen et al., 1983). Examples of questions asked in this scale include “In the last month, how often

have you felt nervous and “stressed”?”, “In the last month, how often have you found that you could not cope with all the things that you had to do?”, and “In the last month, how often have you been able to control irritations in your life?” For each question, the participants answered with scores ranging from 0=never to 4=very often. Scores on the PSS can range from 0 to 40, with higher scores indicating higher perceived stress.

In a comprehensive review of previous research articles focusing on the psychometric properties of the PSS, it was shown that for the specific 10-question version of the PSS, which will be used in the present study, a total of 12 prior studies reported an average Cronbach's alpha value of $\alpha = .70$ (Lee, 2012). The current study had a Cronbach's alpha value of $\alpha = .91$.

Student Adjustment to College Questionnaire

The Student Adjustment to College Questionnaire (SACQ) consists of four distinct scales measured with a total of 67 items. This study used three of the four subscales, specifically those pertaining to students' academic adjustment, social adjustment, and personal-emotional adjustment (Baker & Siryk, 1984). An example item measuring students’ academic adjustment is, “I have been keeping up to date in my academic work.” Social adjustment questions include items such as, “I feel that I fit in well as part of my college environment” and personal-environment questions include, “Lately I have been feeling blue and moody a lot.” These questions are scored using a 9-point Likert scale ranging from, “1 = doesn’t apply to me at all” to “9 = applies very closely to me.”

The full-scale interitem reliability is $\alpha = .92$, while the subscale reliabilities range from $\alpha = .77$ for Personal-Emotional Adjustment to .91 for Attachment and Social

Adjustment (Asher, 1992). While studies have indicated similar intercorrelations among the questionnaires used at various institutions, the Mental Measurements Yearbook does not report a complete intercorrelation matrix for the entire 67-item scale. However, the content validity does suggest that the questionnaire measures at least some aspects related to students' college adjustment. (Asher, 1992). The Cronbach's alpha value of each subscale for the current study were academic adjustment $\alpha = .95$, social adjustment $\alpha = .96$, and personal-emotional adjustment $\alpha = .94$.

Data Analysis

The following research questions guided this study:

Research Question 1: What is the relationship between perception of social support in online gaming and stress for students transitioning to college?

IVs: Four forms of social support (emotional, social companionship, informational, instrumental)

DV: Stress

Hypothesis 1: A higher perception of social support in online gaming will be related to lower levels of stress among students transitioning to college.

Research Question 2: What is the relationship between metacognitions of online gaming and stress for students transitioning to college?

IVs: Positive and negative metacognitions

DV: Stress

Hypothesis 2: A greater level of positive metacognition of online gaming will be related with reduced stress levels among students transitioning to college while

negative metacognitions of online gaming will be related to higher levels of stress among college students.

Research Question 3: How do the metacognitions of online multiplayer gaming, perception of social support, and levels of perceived stress, contribute to the overall adjustment of college students?

IVs: Positive and negative metacognitions about gaming, forms of social support, and stress

DV: Adjustment to college

Hypothesis 3.1: Positive metacognitions about online multiplayer gaming will be related to greater levels of academic, social, and personal-emotional adjustment, while negative metacognitions about online gaming will be related to lower levels of academic, social, and personal-emotional adjustment.

Hypothesis 3.2: Online social support (emotional, social companionship, informational support, and instrumental support) will be related to a positive relationship with academic, social, and personal-emotional adjustment.

Hypothesis 3.3: Lower levels of perceived stress from online multiplayer gaming will be positively related to higher levels of academic, social, and personal-emotional adjustment.

The first goal of the study was to assess the relationship between participants' perceptions of social support in the online gaming context and stress. All three research questions were analyzed using linear or multiple linear regression analysis. An analysis of multiple linear regression was used to study how multiple variables are associated with other variables, allowing for a comprehensive understanding of their combined impact. The

subscales in the OSSS and the SACQ were calculated separately as multiple predictors. Jamovi was used for the regression analyses (The Jamovi Project, 2022).

CHAPTER IV

RESULTS

Descriptive Statistics

Initial recruitment included 226 students. However, only 99 participants fully met the inclusion criteria of being college freshmen, 18 years or older, and currently enrolled at a public university in the Mountain West who regularly engage in multiplayer video games.

Descriptive statistics for all study variables are reported below in Table 1. All variables used in the analysis are made up of the average scores. Both the Positive and Negative Metacognitions scale, as well as the PSS have a range of 1-4, the OSSS has a range of 1-5, and the SACQ has a range of 1-9. Overall, participants reported low levels of negative metacognitions about gaming (*M*=1.43, *SD*= 0.427) and moderate levels of positive metacognitions about gaming (*M*=2.91, *SD*= 0.534). The online social support scale consists of four subscales. Participants on average reported high levels on three of those subscales, esteem/emotional support *(M*=3.95, *SD*= 0.946), social companionship (*M*=4.25, *SD*= 0.762), and informational support (*M*=3.91, *SD*= 0.954). On the final subscale of the OSSS participants reported moderate levels of instrumental support (*M*=2.70, *SD*= 0.851). Regarding perceived stress, participants reported relatively low levels (*M*=1.91, *SD*= 0.610). Finally, the Student Adjustment to College Questionnaire is made up of four subscales, only three were used for the purpose of this study. Participants reported moderate levels of academic adjustment (*M*=6.75 *SD*= 1.301), high levels of social adjustment (*M*=7.15, *SD*= 1.563), and moderate levels of personal emotional adjustment (*M*=6.66, *SD*= 1.765). It is important to note that the 25 missing values in the Social

Adjustment subscale are made up of those who reported they did not live in on-campus dormitories.

Correlation Matrix

Along with the means and standard deviations, Pearson's correlations were calculated. Results are shown in Table 2. These results indicate a correlation between negative metacognitions about online gaming and perceived stressed scale average (r = 0.415, $p < .001$). There was also a moderate correlation between the OSSS Full Scale Average and the SACQ Full Scale Average ($r = 0.633$, $p < .05$). It is important to note that the subscales in the OSSS scale and the SACQ were highly correlated and were averaged together for the full-scale average which was used to analyze the data to address potential multicolinarity.

Table 1

Descriptive Statistics for Positive and Negative Metacognitions about Gaming Scale, OSSS, PSS, SACQ

Descriptives

	N	Mean	Median	SD
Metacognitions Negative Average	99	1.43	1.33	0.427
Metacogntions Positive Average	99	2.91	3.00	0.534
OSSS Esteem/Emotional Subscale Average	99	3.95	4.00	0.946
OSSS Social Companionship Subscale Average	99	4.25	4.30	0.762
OSSS Informational Subscale Average	99	3.91	4.00	0.954
OSSS Instrumental Subscale Average	99	2.70	2.80	0.851
PSS Average	99	1.91	1.90	0.610
SACQ Academic Adjustment Subscale Average	99	6.75	6.88	1.301
SACQ Social Adjustment Subscale Average	74	7.15	7.88	1.563
SACQ Personal-Emotional Subscale Average	99	6.66	7.07	1.765

Table 2

Correlation between Positive and Negative Metacognitions about Gaming Scale, OSSS, PSS, SACQ

Correlation Matrix

	Metacognitions Negative Average	Metacogntions Positive Average	OSSS Full Scale	PSS Average	SACQ Full Scale
Metacognitions Negative Average	—				
Metacogntions Positive Average	0.130	—			
OSSS Full Scale	-0.308 **	0.205 *	—		
PSS Average	0.415 ***	0.070	-0.532 ***	—	
SACQ Full Scale	-0.536 ***	-0.030	0.633 ***	-0.821 ***	—

Note. * p < .05, ** p < .01, *** p < .001

Research Question 1

The hypothesis for research question 1 was that a higher perception of social support in online gaming is related to lower levels of stress among students transitioning to college. A linear regression analysis was conducted to examine the relationships between stress and online social support using the OSSS Full Scale and the PSS.

The model R^2= 0.283, indicating that approximately 28.3% of the variation in the PSS Average could be predicted. The overall model was significantly above chance level (F (1, 97) = 38.3, p < .001). The results indicated that the OSSS Full Scale was significantly associated with PSS (R^2= 0.283, F (1, 97) = 38.3, p < 0.001) as indicated in Table 3. The hypothesis was supported.

Table 3

Regression Between PSS and Averaged OSSS Full Scale

Model Coefficient- PSS

Predictor	Estimate	*SE*	*t*	*p*
Intercept	3.404	0.2464	13.81	<.001
OSSS Full Scale	-0.403	0.0651	-6.19	<.001

Note. R^2=0.283; F=38.3; df (1, 97); p<0.001.

*p<0.05

Research Question 2

The hypothesis for research question 2 was that a greater level of positive metacognition of online gaming is related to reduced stress levels among students transitioning to college while negative metacognitions of online gaming is related to higher levels of stress among college students.

The model R^2= 0.173, indicating that approximately 17.3% of the variation in PSS Average could be predicted. The overall model was significantly above chance level (F(2, 96) = 10.0, p < .001). Only negative metacognitions about online gaming could significantly predict stress (R^2= 0.173, F (2, 96) = 100, p= <0.001), indicating that students who have negative metacognitions about online gaming experience higher levels of stress. The relationship between positive metacognitions and stress was not statistically significant (R^2= 0.173, F (2, 96) = 10.0, p= 0.944). The hypothesis was partially supported. See Table 4 below.

Table 4

Positive and Negative Metacognitions about Gaming Predicting PSS

Model Coefficient- PSS

Predictor	Estimate	*SE*	*t*	*p*
Intercept	0.96991	0.348	2.7869	0.006
Metacognitions Negative	0.64855	0.141	4.6035	<.001*
Metacognitions Positive	0.00743	0.106	0.0698	0.944

Note. R^2=0.173; F=10.0; df (2, 96); p<0.001.

*p<0.05

Research Question 3

For research question 3, the original plan was to run three separate regression analyses with the SACQ subscales treated as separate outcomes of college adjustment. However, for the current analysis, the three subscales from the SACQ were averaged together for this research question. The reasoning behind this was that the subscales of academic, social, and personal-emotional adjustment were highly correlated to each other (Table 2). The model R^2adj= 0.743, indicating that approximately 74.3% of the variation in SACQ Full Scale Average could be predicted by positive and negative metacognitions about online gaming, OSSS, and PSS. The overall model was statistically significant ($F(4, 69) = 53.8$, $p < .001$).

Hypothesis 3.1: Metacognitions and College Adjustment. The first hypothesis for research question 3 was that positive metacognitions about online multiplayer gaming is related to greater levels of academic, social, and personal-emotional adjustment, while negative metacognitions about online gaming is related to lower levels of academic, social, and personal-emotional adjustment. The results indicated partial support. Positive metacognitions about online multiplayer gaming did not show statistical significance

(R^2adj= 0.743, $F(4, 69) = 53.8$, $p = 0.991$). Results regarding negative metacognitions about online multiplayer gaming, however, indicated statistical significance (R^2adj= 0.761, $F(4, 69) = 53.8$, $p = 0.007$). Results are shown in Table 5.

Hypothesis 3.2: Online Social Support and College Adjustment. The second hypothesis for research question 3 was that online social support is related to a positive relationship with academic, social, and personal-emotional adjustment. The results showed the following for the OSSS Full Scale (R^2adj= 0.761, $F(4, 69) = 53.8$, p=0.001). The results indicated no statistical significance. See Table 5 below..

Hypothesis 3.3: Perceived Stress and College Adjustment. The third hypothesis for research question 3 was that lower levels of perceived stress from online multiplayer gaming is positively related to higher levels of academic, social, and personal-emotional adjustment. The results indicated statistical significance between the PSS and the SACQ, (R^2adj= 0.761, $F(4, 69) = 53.8$, $p < 0.001$). Therefore, there is support for hypothesis 3.3. See Table 5 below.

Table 5

Regression Between Positive and Negative Metacognitions about Gaming, Four OSSS Subscales, and PSS Predicting College Adjustment

Model Coefficient- SACQ Full Scale

Predictor	Estimate	*SE*	*t*	*p*
Intercept	8.75874	0.827	10.5864	<.001*
Metacognitions Negative	-0.72024	0.259	-2.7764	0.007*
Metacognitions Positive	0.00243	0.205	0.0118	0.991
OSSS Full Scale	0.4386	0.129	3.389	0.001
PSS	-1.35363	0.207	-6.5393	<.001*

Note. R^2adj=0.743; F=53.8; df (4, 69); p<0.001.

*p<0.05

CHAPTER V

DISCUSSION

Research Question 1

Research question 1 focused on the relationship between perceived stress and online social support. The results of the linear regression analysis indicated a significant association. This finding aligns with past research that suggests social support can help reduce stress (Taylor et al., 2013), and that online gaming is a potential way to enhance that social support and create a community (Carrasco, 2016; Iacovides & Mekler, 2019). Research has found that online multiplayer video games allow individuals to maintain and create relationships with others, which can significantly reduce stress (Jones et al., 2014). To back this finding, multiple studies have shown that social support provides emotional and informational resources that can help an individual cope with stress (Halbrook et al., 2019; Zaleski et al., 1998). During the time of transition to higher education, this is an especially important finding considering the stress associated with college (Baghurst & Kelley, 2013; Compas et al., 1986).

It was hypothesized that the more online social support students felt they had the less stressed they would feel, this hypothesis was supported. From a uses and gratification perspective, students are actively seeking support from online multiplayer gaming as means of releasing stress, aligning with past research that suggest users are active in their media use and are looking for specific gratifications out of it (Marino et al., 2016). Furthermore, U&G might suggest that students will continue to associate online

multiplayer gaming with stress reduction, potentially making it a primary motivation for engaging in gaming.

Research Question 2

Research question 2 focused on the relationship between positive and negative metacognition in relation to perceived stress among college freshmen. The results of the multiple linear regression suggest that higher levels of negative metacognitions are associated with higher levels of perceived stress as predicted. Interestingly, the results also showed that positive metacognitions had no statistical significance concerning perceived stress. Although there are yet to be studies that use positive and negative metacognitions about gaming specifically with college students, previous research would suggest that negative metacognitions about online gaming would be related to distractions which could help explain why they were associated with more perceived stress (Caselli et al., 2020). Negative metacognitions about online gaming have also been associated with more addictive tendencies in gaming habits (Gandolfi et al., 2021). Addictive tendencies in gaming, often expressed by user's negative metacognitions, can result in negative impacts on social relationships, academic performance, and sleeping patterns. This may explain why students with negative metacognitions about online gaming tend to experience higher levels of stress.

Despite there being a relationship between negative metacognition and perceived stress, more students reported positive metacognition about online gaming. The idea of positive metacognition is, as described in previous research, an understanding of the benefits associated with a particular behavior, for example, the idea that using a

smartphone will help one relax (Casale & Spada, 2021). Past research has found that no matter the source of stress, video games can effectively assist in reducing it when used in positive ways (Li et al., 2023). This report of higher positive metacognitions about gaming in this study may be a result of the increasing popularity of online video games, which have increased in popularity over time (Gandolfi et al., 2021; Kowert et al., 2014).

Research Question 3

For research question 3, there were three hypotheses. First, it was hypothesized that positive metacognitions about online multiplayer gaming would be related to greater levels of academic, social, and personal-emotional adjustment in the transition to college, while negative metacognitions about online gaming would be related to lower levels of academic, social, and personal-emotional adjustment in the transition to college. The results of the multiple linear regression suggest no significant association between positive metacognitions about online gaming and college adjustment, however, negative metacognitions about online gaming were associated with lower levels of academic, social, and personal-emotional adjustment. The present study aligns with previous research by establishing a relationship between negative metacognitions about online gaming and experiences of lower levels of college adjustment. Previous research found that the presence of negative metacognitions about online gaming, during which individuals acknowledge their inability to control playtime, resulted in decreased quality of life and problematic online gaming behaviors (Akbari et al., 2021; Marino et al., 2020). Furthermore, past research has found that negative associations with video games result in

negative adjustment in multiple areas, including academic adjustment (adjustment (Drummond, 2009).

Second, it was hypothesized that online social support would be related to higher levels of academic, social, and personal-emotional adjustment in college. The results of the multiple linear regression suggest no significant association. This was a surprising result because previous research suggests that social support in general is associated with positive adjustment (Taylor et al., 2013). Studies have also shown that online multiplayer video games containing social elements contribute to an increased sense of support and positive feelings enabling students to be more emotionally stable (Bowman et al., 2022; Halbrook et al., 2019; Przybylski & Minshkin, 2016). As media and technology have become more prevalent it was expected that the results would reveal a stronger association between online social support and college adjustment. Previous research found opportunities for increased social support within online gaming communities (Carrasco, 2016; Iacovides & Mekler, 2019). Despite the anticipation of a stronger association between online social support and college adjustment, the present study's findings highlight the need for further studies between these specific variables.

Finally, it was hypothesized that lower levels of perceived stress would be positively related to higher levels of academic, social, and personal-emotional adjustment. The results of this multiple linear regression indicated that lower levels of stress resulted in better college adjustment. The findings are important and consistent with previous research that shows that stress significantly impacts educational adjustment (Desai et al., 2021). Furthermore, this research indicates that low levels of stress are a critical element of the academic journey, as stress continues to be a concern that significantly impacts not

only educational but also social experiences (Desai et al., 2021; Saleh et al., 2017). The current study's results are consistent with prior research, highlighting that reduced stress levels and effective stress management contribute to more positive college experiences (Desai et al., 2021).

Limitations

Multiple limitations in this study should be noted. First, while this initial study provides useful insights by examining all variables together, integrating different measures and allowing more time for a more comprehensive study may improve the results.

Additionally, there were resource-related limitations impacting the study. The timeline constraints limited the data collection period, potentially impeding the ability to gather a more diverse and larger sample. Additional time for data collection could have improved the dataset and strengthened the study's generalizability. In acknowledging a potential limitation impacting generalizability, convenience sampling was used for the current study.

Time may have also had an impact on the relationships that were hypothesized. There may have been greater relationships between variables had the study been done longitudinally and the relationships may not be present cross-sectionally. A longitudinal study could have improved the findings as it would show the impact of online multiplayer videos games throughout the entire college experience as opposed to one time during their college experience. Furthermore, recruitment could have been improved by providing a greater incentive for student participation (e.g., funding). This could contribute to a more

robust sample. The sample size of the present study was 99 participants. Ideally, a larger sample size would have provided a sample that more closely resembles the population in establishing the relationships between variables. In turn, the data analysis would have been able to draw stronger, more reliable conclusions as a result of enhanced statistical power.

Implications and Future Research

The significant relationship found between negative metacognitions and perceived stress as well as lower levels of college adjustment among college freshmen highlights the importance of addressing negative thought patterns related to gaming behaviors. The growing number of individuals participating in gaming and the increased use of screens among college students post-COVID-19 pandemic make this particularly important (Kim et al., 2020). Thus, interventions or support groups aimed at reframing these negative metacognitions could be valuable in reducing stress levels and promoting well-being among freshman students who identify as gamers.

The positive relationship between lower levels of perceived stress and higher levels of college adjustment in the present study highlights the importance of stress management strategies when it comes to positive college experiences. Encouraging stress management courses and seminars during the first semester, personalized to the needs of incoming college students may motivate students to address their stress in ways that best suit them.

Future research could benefit from focusing specifically on the motivation of online multiplayer video gameplay using U&G to explore how that would impact college

adjustment overall. The focus on motivation would benefit from using qualitative data, ideally, this could be achieved by allowing for more time in data collection and more resources. For example, in a qualitative study conducted to understand motivations to start playing online multiplayer games, it was found that involvement was one of the most influential themes, followed by socializing, interest, curiosity, and forming relationships as subcategories for gameplay motivation (Kahraman & Kazançoğlu, 2022). These qualitative findings are valuable because the themes emerged directly from the participants' own perspectives and experiences. Similarly, qualitative research may help with better understanding the lived experience surrounding positive metacognitions towards online multiplayer gaming and examine how students perceive multiplayer gaming in the transition to college.

Future research could also identify and compare motivations across different gaming genres and single-player games, as well as their impact on adjustment. Based on the present study's lack of findings on positive metacognitions and perceived stress, researchers may benefit from looking at why students may hold positive views about gaming regardless of perceived stress. Future research could benefit from exploring longitudinal effects of online multiplayer gaming to better understand the impact it has on college adjustment. This would provide insight into how gaming habits throughout the college years may impact the course of adjustment.

Conclusion

The present study sought to expand on the research that pertains to the potential positive impacts of online multiplayer video games and to determine if there is a relationship that online gaming has on gaming-related metacognition, perceived levels of social support, and the experience of stress, all within the context of college adjustment among freshman students.

The results of the present study did not fully reach the hypothesized outcomes. However, the findings from the study suggest that online social support was associated with lower levels of stress. Higher levels of negative metacognitions are associated with higher levels of perceived stress as predicted. Additionally, negative metacognitions about online gaming was associated with lower levels of college adjustment, and lower levels of stress result in better college adjustment. Future studies could benefit from looking further into how positive metacognitions about online gaming can impact college students.

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