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**EXCESSIVE ONLINE GAMING: DEVOTION AND ADDICTION TO E-  
SPORTS**

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Trabalho de tese apresentado à Escola de Administração de Empresas de São Paulo da Fundação Getúlio Vargas, como requisito para obtenção do título de Doutor em Administração de Empresas.

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## Sumário

RESUMO .....	5
Thesis Introduction .....	7
Study 1: The True One: Perspectives on the Sacralization of a Brazilian E-Sports Icon.....	9
Study 2: Excessive Online Gaming: Inside the Routine of an E-Sports Fanatic .....	20
Study 3: Abusive Passion: From Devotion to E-Sports, to Online Gaming Addiction .....	33
Introduction .....	35
Online gaming addiction .....	37
Devotion .....	39
Antecedents and consequences .....	41
Method .....	46
Analysis and Results .....	47
Analysis of measurement model .....	48
Structural Model Analysis .....	51
Hypothesis testing .....	53
Final Remarks .....	56
Thesis Final Remarks.....	60
References .....	63
Appendix .....	71
Scales .....	71
Competitiveness .....	71
Role Model .....	71
Devotion to esports .....	72
Online Gaming Addiction .....	72
Guilt.....	72

## RESUMO

Embora jogar online seja uma experiência cada vez mais comum no cotidiano de jovens e adolescentes, jogar online excessivamente pode levar a sintomas graves (Chiu, Lee & Huang, 2004). Em relação às consequências desse fenômeno para os consumidores, há uma clara necessidade de buscar uma maior compreensão das motivações do comportamento excessivo, para que esse conhecimento suporte o desenvolvimento de novas estratégias para evitar o consumo abusivo (Kuss & Griffiths, 2012). Com esse objetivo, são apresentados três estudos. O primeiro artigo, uma videografia qualitativa, tem como objetivo expandir a compreensão de como os fãs de esports se tornam devotos por meio de processos de sacralização. O segundo artigo, também uma videografia qualitativa, oferece uma visão mais aprofundada dos elementos que compõem o vício do esports, especialmente relacionados aos antecedentes e consequentes do comportamento abusivo. O terceiro artigo, um trabalho quantitativo baseado em SEM-PLS, visa aprofundar a compreensão da devoção dos fãs e sua relação com o comportamento de consumo abusivo em jogos eletrônicos. A combinação desses trabalhos amplia o conhecimento construído em trabalhos anteriores relacionados à devoção e dependência de jogos, contribuindo diretamente para a demanda de novos estudos para aprofundar as complexas relações estabelecidas no contexto do esports (Seo, 2013).

**Palavras-Chave:** Vício em jogos online, e-sports, devoção, jogos eletrônicos.

## ABSTRACT

Although playing online games is an increasingly common experience in the daily lives of young people and teenagers, playing online excessively may lead to serious symptoms (Chiu, Lee & Huang, 2004). Regarding the consequences of this phenomenon for consumers, there is a clear need to seek an understanding of the motivations of the excessive behavior, so that this knowledge supports the development of new strategies to avoid abusive consumption (Kuss & Griffiths, 2012). Aiming this goal, three studies are presented. The first article, a qualitative videography, aims to further expand the understanding of how fans of esports become devotees through sacralization processes. The second article, also a qualitative videography, offers further insight into the elements that composes the esports addiction, specially related to antecedents and consequents of the abusive behavior. The third article, a quantitative SEM-PLS based work, aims to deepen the understanding of fan devotion and their relationship to abusive consumption behavior in electronic games. The combination of those works expands the knowledge constructed in previous works related to devotion and gaming addiction, directly contributing to the demand for new studies to deepen the complex relationships established in the esports context (Seo, 2013).

**Keywords:** Online gaming addiction, e-sports, devotion, electronic game.

## Thesis Introduction

Although playing online games is an increasingly common experience in the daily lives of young people and teenagers, the literature reveals that playing online excessively, in extreme cases, can lead to serious symptoms, such as alienation from the real world, degradation of academic performance, drastic changes in mood and so on (Chiu, Lee & Huang, 2004). Recent research shows that between 2% to 3% of players develop symptoms of pathological addiction, and in some specific games, as much as 44% of players report that they feel addicted to the game (Przybylski, Weinstein, & Murayama, 2016; Tech Addiction, 2013). Regarding the serious consequences of this phenomenon for consumers, and its growth in recent years, there is a clear need to seek an understanding of the motivations that lead these young people to exhibit excessive behavior, so that this knowledge supports the development of new strategies to avoid abusive consumption online games (Kuss & Griffiths, 2012).

Aiming this goal, in the present work, three studies are presented. The combination of those works expands the knowledge constructed in previous works related to devotion and online gaming addiction, directly contributing to the demand for new studies to deepen the complex relationships established in the esports context (Seo, 2013).

The first article, a qualitative videography, aims to further expand the understanding of how fans of brands, product or activities become devotees through sacralization processes, as predicted by Pichler and Hemetsberger (2007). Also, elements of sacred define by Belk et al (1991) are presented within the E-Sports context for the first time, expanding the domains which this type of relationship with brands and activities arise.

The second article, also a qualitative videography, offers further insight into the elements that composes the esports addiction, specially related to antecedents and consequents of the abusive behavior. Esports addicted fans described common elements that drive them to play absurd amount of hours, such as Pro Players inspiration, relationship needs, and flow state.

The third and last article, a quantitative SEM-PLS based work, aims to deepen the understanding of fan devotion in a still unexplored context: esports (Seo, 2013) and their relationship to abusive consumption behavior in electronic games. Such factors are explored by means of the proposition of new predictors of devotion behavior linked to specific characteristics of esports, namely competitiveness (Harris & Houston, 2010) and role model (Dix, Phau & Pugnet, 2010), analysis of the relationship between devotion and online gaming



addiction, and a revision of Ortiz, Reynolds & Franke's (2013) proposition on the relationship between devotion and feelings of guilt as a consequence.

## Study 1: The True One: Perspectives on the Sacralization of a Brazilian E-Sports Icon

### RESUMO

Marcas podem se tornar elementos de adoração e fervor, e os fãs destas marcas se tornam devotos através de um processo de sacralização (Belk et al., 1991), e essa devoção leva os consumidores a se comportarem de maneira muito semelhante a cultistas (Pimentel & Reynolds, 2004). Através de uma abordagem etnográfica, foi explorada a sacralização dos esports de acordo com três aspectos principais: 1. A construção do mito do profeta (Belk & Thumbat, 2005); 2. A peregrinação a lugares sagrados; 3. A coleta de objetos sagrados (Belk et al., 1991). O culto criado em torno de FalleN, um importante jogador profissional de e-sports, é explorado, demonstrando sua representação como uma figura sagrada na comunidade, onde ele é conhecido como "O Verdadeiro". Com entrevistas em profundidade e dados coletados em um dos maiores eventos de e-sports do mundo, este estudo expande a compreensão de como os fãs de marcas, produtos ou atividades se tornam devotos por meio de processos de sacralização, conforme previsto por Pichler e Hemetsberger (2007). Trabalhos anteriores sobre devoção detalham alguns dos elementos do sagrado, no entanto, eles não levam em consideração a influência de figuras sagradas líderes em seus modelos. Este trabalho fornece evidências de que o mito do profeta (Belk & Tumbat, 2005) é uma grande influência no comportamento dos devotos, e propomos que novos modelos de devoção devem considerar esse elemento como um fator importante dentro do processo de devoção dos fãs.

Palavras-chave: dependência de jogos online, esportes eletrônicos, devoção, jogos eletrônicos, videografia.

## ABSTRACT

Brands may become elements of adoration and fervor, and brands fans become brand devotees through a sacralization process (Belk et al., 1991), and this devotion drive consumers to behave very similarly as cultists (Pimentel & Reynolds, 2004). Through a ethnographic based approach, we explore the sacralization of esports according to three major aspects: 1. The construct of the prophet myth (Belk & Thumbat, 2005); 2. The pilgrimage to sacred places; 3. The collecting sacred objects (Belk et al., 1991). The cult created around FalleN, a major professional esports player, is explored, demonstrating his representation as a holy figure within the community, where he is known as “The True One”. With in-depth interviews and data collected in one of the biggest esports events in the world, this study further expands the understanding of how fans of brands, product or activities become devotees through sacralization processes, as predicted by Pichler and Hemetsberger (2007). Previous work on devotion account for some of the elements of the sacred, however, they do not take in consideration the influence of leading sacred figures in their models. We provide evidence that the prophet myth (Belk & Tumbat, 2005) is a major influence of the behavior of devotees, and propose that further models of devotion should consider this element as an important factor within fandom to devotion process.

**Keywords:** Online gaming addiction, e-sports, devotion, electronic game, videography.

## Video Transcription

Videography available at: <https://vimeo.com/383965520>

### Frame 1:

The True One: perspectives on the sacralization of a Brazilian E-Sports icon. Religion has always been a strong fundamental element of society. Humans being always relied on gods and prophets to give meaning for their lives. In the context of our modern society, consumption can become a vehicle of transcendent experience: that is, consumer behavior exhibits certain aspects of the sacred. (Belk et al., 1991). Brands may become elements of adoration and fervor, and brands fans become brand devotees through a sacralization process. This devotion drive consumers to behave very similarly as cultists (Pimentel & Reynolds, 2004). Elements of this kind of cult-behavior are very well documented, with a diverse range of focal points... from computers to college football, from TV shows to motorcycle brands (Pimentel & Reynolds, 2004). Now, there are clear signs of sacralization and cult-like behavior in a modern and very popular hobby among young people: the Electronic Sports. Or simply E-Sports. Sacralization in E-sports has never been approached in previous research and it is the focus of this study. Are E-Sports a religion-like movement? Does E-Sports religion have its own prophet? Who is the E-sport chose one? Who is the legend of E-Sports? The True One? Electronic Sports is one of the most important and fast growing forms of modern entertainment, with more than 380 million of enthusiasts all around in the world (Newzoo, 2018). The core of E-sports interest revolves around the organized competitions, such as leagues or championships. Professional videogame players compete for huge prizes, and the massive fan audience connect with them through streaming platforms, YouTube videos and local events scattered around the globe. One of the major games in the E-Sports scene is Counter Strike: Global Offensive (CS:GO), a highly competitive first person shooter game, played in a five versus five matches format. Brazil is one of the most prominent countries in CS:GO competitive scene, and much of Brazilians' teams recent success is related to the trajectory of the most important CS:GO player ever. (0'0" a 2'37")

## Meet Gabriel “FalleN” Toledo: The True One

### Frame 2:

In 2003 a legend emerged. Without even imagining where it would arrive. With great determination and humility. He made it clear that one day he'd conquer the world. And he conquered ... Everything that one day he dreamed of. He believed, and was rewarded for what he fought. And it wasn't just him who won. He has put CS: GO Brazil in another level. You always said to trust the True One. And because of so much trust, he has put us in first. Fallen is inspiration for the whole world and represents the Brazilian's willpower. He created GC to teach a few things and nothing more. And today he is responsible for training professionals. True One, he shows the world how to do it. Take your rifle and shine, bring home the trophy. (2'38" a 3'30")

### Frame 3:

In this study, we explore the sacralization of E-Sports, or more specifically, the development of de Brazilian CS:GO cult according to three major aspects: 1. The construct of the prophet myth (Belk & Thumbat, 2005); 2. The pilgrimage to sacred places; 3. The collecting sacred objects (Belk et al., 1991). 1. The construct of the prophet myth. The history of FalleN, and how he became the True One, is perceived by the fans as similar to the path of figures such as Buda and Steve Jobs, as they all represent in some way the classic heroic adventure myth (Campbell, 1991). From his humble beginnings to the now iconic inspirational figure, fans demonstrate a strong mythology around the central role that FalleN had (and still has) on the development of the Brazilian CS:GO competitive scene. Fervent loyalists, cultists or religious followers, being related to traditional religions or to brands, shows, activities or products, usually share an apothecotic leader, who rises to become the sacred legend and restore faith (Belk & Tumbat, 2005). FalleN, as called by his fans, “The True One”, represents this essential figure one the sacralization process. (3'31" a 4'26")

São Paulo, SP - Brazil

Frame 4: It is Fallen..

Fallen? But why?

Because of his history. If it wasn't for him, the Brazilian CS scene would be nothing. He gave more "gas" to a CS scene that was dying, he has put his hand on the fire for the crowd, and the crowd embraced him. He is what he is today because of that. (4'27" a 4'45")

Frame 5: FalleN is an inspiring person. The contact and affection he has with the public, let's put it this way, he conquered it. He's been conquering everything all the time because he's a unique person, where he goes, he shows who he is. (4'46" a 5'02")

Frame 6: Why him?

Because when he is alone and he is with his AWP (FalleN's weapon of choice at the game) he can make plays that no one can and that is why he is the True One, he can do what no one else can. I would like to play like him, play with AWP like him, and when he starts the round, I want to think like him. (5'03" a 5'29")

Frame 7: Oh he plays very well. I saw his past, he fought like hell to get where he is today. And I'm doing the same things he did, I'm passing through the same process. (5'30" a 5'39")

Frame 8: I started to watch FalleN when he was at SK (professional team), and I got a lot of inspiration from him, because I like to play with AWP. And I started to visualize myself in him. And then I gained experience, and I only play with AWP nowadays because of him. I'm inspired by him, and all his games I cheer to the max. He's a very nice person. And man, I think he's a great guy. My dream was to meet him, take a picture with him and I will still have his signature tattooed on my arm. His whole team is amazing, but my goal here is to watch him play. (5'40" a 6'14")

Frame 9: The life story he has since he started playing, all the problems he faces. So, everyone in this scenario seeks to be inspired by him.

And personally?

Yes for sure. Not only within the game, but in life as well. Damn, I mirror myself a lot at FalleN because he's a guy who struggled to get where he is. Today he is a player, today he is a businessman, so he became a very big reference in the scene. (6'15" a 6'43")

Frame 10: And you play CS too?

Yes, all the time.

And you are inspired by him?

Certainly. No doubt. He's my biggest idol. I'm always watching his videos, trying to improve myself based on him. I watch everything he's watching.

And as a human being?

Sensational. Very nice guy. He answers everyone, he takes pictures with fans, he even comes here so he can be close to the crowd. He is an inspiration in both player and human sides. (6'44" a 7'05")

Frame 11: I've been watching him for a long time, so watching him play is something that makes me feel good. There were moments in my life that I was very sad and seeing him playing cheered me up. (7'06" a 7'16")

Frame 12: He's an amazing and nice person, he gives all his best all the time.

And why do you call him The True One?

Because when he takes the AWP in his hand, there is no one to hold him back. He's fast. When he needs to do something, he does it. And very well done. He's the True One. (7'17" a 7'36")

Frame 13: And they call him “The True One”.

“The True One”.

But why?

Dude, among other players, his skills makes him unique, so he’s the true player, he’s the one. (7’37” a 7’50”)

Frame 14:

2. The pilgrimage to sacred places. One of the most prominent elements of sacralization is pilgrimage (Pimentel & Reynolds, 2004). Places where sacred persons were born, performed miracles, or received mystic revelations, become sacred. Pilgrimage refers to “the journey away from home to a consumption site, where an experience of intense sacredness occurs” (Belk et al., 1991). It is in local events, such as the ESL CS GO Pro Series, that FalleN shows his miracles to their devotees. Unbelievable skillful plays are called “miracles” by the fans, and comebacks from games that the team started behinds become a lifetime affect memory. In Brazil, CS:GO events may have more than 10,000 fans from all around the country. Such pilgrimage is very similar in other sports, such as American Football, as related by Pimentel and Reynolds (2004). The sacrifice to watch FalleN live is clear when fans talk about distances traveled to attend the event. (7’38” a 8’56”)

Frame 15: Araras, countryside of the state of São Paulo.

How long was the trip to get here?

Around two and a half hours.

By car?

Yes.

It is far away man.

Yes, it is kind of far, but it’s a sacrifice that we do to attend.

But why all this sacrifice?



Man, I play CS since I was a child, I always watched it. It is the first time he has come to São Paulo. That's it.

So how is the event going?

Man, sensational. I've never been so excited with an event in my life. I'm speechless. I've done everything already and the "gas" is not over.

It is your first event?

First time.

And you want to attend other events?

For sure. If there are more like this, I'm coming..

Regardless of the distance?

Regardless of the distance. (8'57" a 9'30")

Frame 16: Is it far from here??

Around 400km.

How did you travel? By car?

By car.

But why did you travel such a distance?

To meet FalleN.

To meet FalleN?

To meet FalleN.

And you did it?

Thank God I did. (9'31" a 9'44")

Frame 17: And you intend to attend the next event?

Yes I do.

Even if it is far away from your hometown? Wherever it is?

Wherever it is, I'll be there. (9'45" a 9'50")

Frame 18: Santa Catarina.

Santa Catarina State? From where exactly?

I'm from Morro da Fumaça, south of the state.

But you came here...

I came just to attend the event.

You know how many kilometers you traveled?

Around 600km.

So you traveled by plane?

Yes, from the city of Florianópolis to São Paulo's Airport.

But why travel such a long distance?

Dude, my admiration for the Brazilian CS scene and for the game itself gave me the desire to come. It's like I'm going to a music concert. (9'51" a 10'19")

Frame 19:

3. The collecting sacred objects. Other essential element of cults and religions is the Quintessence, which is the sacralization of mundane objects. Objects that are somehow related to sacred persons become venerated icons, as they are embedded in the sacredness that emanates from the prophet figure (Belk e Tumbat, 2005). Those objects may be branded commodities, but they mean much more, bringing a sense of wonder and inspiration to the devotees (Belk et al., 1991). Much of the interest around the pilgrimage to CS:GO events are related to the conquest of quintessential objects. At every event, fans wait for hours in huge lines to get a signature from FalleN. Usually the fans expect to get signatures on one of FalleNs branded products, such as t-shirts, posters, and the most sought after, mouse pads. As soon as the object are obtained and signed, they become sacred for the fans, and become part of essential elements

of sacralization, such as collecting, being part of rituals, and compose heirlooms (Belk et al., 1991). Common behavior are using mouse pads for inspiration while playing, framing the signed object to expose or to be part of personal sanctuary, and keeping them to pass to their children. (10'20" a 11'40")

Frame 20: Did you get any autographs?

Yes, I already have a lot of signed things.

But why do you take his autographs?

Dude, because it's good to keep a memory. When I grow up, I'll show it to my son. "Look, remember this guy, this guy has been an idol for me for so many years", after all, since I was 6 years old I have been following him. So I'm proud to have these things. (11'41" a 11'59")

Frame 21: Oh, look, I came with the intention of buying the t-shirt and getting autographs, and I intend to frame this t-shirt. Because it will always be a very big reference. Whenever I have a problem, remembering what I experienced here today will be a way for me to face my difficulties.

That's great. (12'00" a 12'20").

Frame 22: Because it is a way to keep it as a souvenir. There are people who take it, use it with FalleN's signature and think "this is what I want for my future". I want to be a pro player, a streamer maybe... He decides his course.

And the mousepad is part of it?

It's part of it. There are people who take it and frame it. They think "wow, I got his signature". It is like a memory that he could pass on not only to him, but to his children, to his friends. They'll arrive back home and think: "this guy here is a monster". (12'21" a 13'05")

Frame 23:

E-Sports is a relatively new area of research and the field demands more exploration as per the complex relationships that fans build inside the gaming context (Seo, 2013). FalleN is viewed

as true sacred figure, extrapolating the boundaries of a role model, as Bush, Martin e Bush (2004) observed in traditional sports. This study further expands the understanding of how fans of brands, product or activities become devotees through sacralization processes, as predicted by Pichler and Hemetsberger (2007). Also, elements of sacred define by Belk et al (1991) are presented within the E-Sports context for the first time, expanding the domains which this type of relationship with brands and activities arise. The literature regarding devotion also benefits from the insights of this work, as elements of the transition from fandom to devotion through sacralization processes previewed in the tropical model proposed by Pimentel and Reynold (2004), such as quintessence or pilgrimage, are reinforced field data observed in a new context – E-Sports. Beyond reinforcing the devotion literature through observation of elements of the sacred within devotees, we propose a new and important factor that influence the transition from fandom to devotion – the construction of the prophet myth. Previous work on devotion account for some of the elements of the sacred as seen in Belk et al. (1991), however, they do not take in consideration the influence of leading sacred figures in their models. We provide evidence that the prophet myth (Belk & Tumbat, 2005) is a major influence of the behavior of devotees, and propose that further models of devotion should consider this elements as an important factor within fandom tho devotion process. Further research should explore other possible elements of sacralization in the e-sports contexts, such as rituals, gift giving and inheritance (Belk et al., 1991). Other communities may differ in behavior, especially related to other models of gaming (MMORPGs, MOBAs, etc.). The prophane facet of the religious context was not explored, and negative behavior with the cult, such as extreme rivalry, sexism and trolling should bring interesting new insights. Regarding the Brazilian CS:GO competitive community... May the True One guide your next match. (13'06" a 15'14")

Frame 24:

True One, never change who you are. While you still believe, we'll still have FAITH. (15'15" a 15'26").

## Study 2: Excessive Online Gaming: Inside the Routine of an E-Sports Fanatic

### RESUMO

Embora jogar online jogos digitais seja uma experiência agradável, a literatura revela que jogar online excessivamente, em casos extremos, pode levar a sintomas comumente relacionados ao vício, como alienação do mundo real, degradação do desempenho acadêmico, perda da noção de tempo, oscilações de humor e dentre outros (Chiu, Lee & Huang, 2004). Portanto, é necessário estudar as motivações que levam ao comportamento excessivo, com o objetivo de delinear novas estratégias para prevenir o consumo abusivo de jogos online (Kuss & Griffiths, 2012). O objetivo desta videografia é identificar essas motivações e analisar como elas interagem no contexto de jogos on-line competitivos (e-sports). Uma série de entrevistas em profundidade (20) foi realizada com jogadores de Dota 2 e Counter strike, que acompanham de perto o cenário competitivo desses jogos. Observou-se que grande parte da experiência dos jogadores está ancorada nas relações sociais e amizades criadas dentro do círculo do jogo e na mentalidade competitiva dos jogadores. Os informantes relataram uma alta percepção do estado de fluxo durante a experiência de jogo online, o que corrobora os achados de estudos anteriores (Lee, 2009). A percepção de Flow foi considerada um fator altamente influente do comportamento em questão. Os informantes também relataram uma forte identificação com os jogadores profissionais, que servem de exemplo para eles. A imitação do comportamento de jogo de seus modelos, como visto no efeito doppelganger do consumidor (Ruvio, Gavish, & Shoham, 2013), explica ainda mais o excesso de jogos. A videografia contribui com informações valiosas para lidar com rotinas abusivas de jogo, visando a busca por uma relação saudável com a atividade.

Palavras-Chave: Vício em jogos online, e-sports, devoção, jogos eletrônicos, videografia.

## ABSTRACT

Although playing digital games online is an enjoyable experience, literature reveals that playing online excessively, in extreme cases, may lead to symptoms commonly related to addiction, such as alienation from the real world, degradation of academic performance, loss of sense of Time, mood swings, and so on (Chiu, Lee & Huang, 2004). Therefore, there is a need to study the motivations that lead to excessive behavior with the aim to outline new strategies to prevent the abusive consumption of online games (Kuss & Griffiths, 2012). The objective of this videography is to identify these motivations and analyze how they interact in the context of competitive online games (e-sports). A series of in-depth interviews (20) was conducted with players of Dota 2 and Counter strike who closely follow the competitive scene of these games. It was observed that much of the players' experience is anchored in the social relations and friendship created within the game circle, and by the competitive mindset of the players. The informants reported a high perception of flow state during the online gaming experience, which corroborates the findings of previous studies (e.g.: Lee, 2009). Flow's perception was found to be a highly influential factor of the behavior in question. The informants also reported a strong identification with the professional players, who serve as role models to them. The mimicry of their role models' gaming behavior, as seen in the consumer doppelganger effect (Ruvio, Gavish, & Shoham, 2013), further explains the excessive gaming. The videography contributes with rich insights to deal with abusive e-sports online gaming, aiming for a healthy relationship with the activity.

**Keywords:** Online gaming addiction, e-sports, devotion, electronic game, videography.

Videography available at: <https://vimeo.com/207895180>

## Video transcription

### Excessive Online Gaming: Inside the Routine of an E-Sports Fanatic

In the recent years, e-sports have grown faster and stronger, as never seen before. Championship live streams have reached over 124 million people over the world in 2016. Brazil is the third biggest audience of e-sports in the world. That means 11.4 million enthusiasts. And that number is growing everyday. We talked to 20 male players that are close to the sports scene, from age 17 to 30. Half of them were recorded at ESL, São Paulo, Brazil.

### What is ESL?

ESL Pro Leagues is one of the biggest Counter Strike: Global Offensive Championships in the world. For the first times in the finals took place in the South America. About 6,000 people attended each of the event's three days.

### Meet Bruno

#### Frame 2:

My name's Bruno, I'm 26 years old and I'm a computer science student. I started to play Counter – Strike about 8 years ago and have played competitively for 4 years. I'm on a team and we train every day to play in amateur championships, small championships. Usually, we play everyday, at night after we get home from class, because we're all students. Our training goes through the night, so, I usually go to sleep very late. Because of that, I also wake up very late, about 2:00, 2:30 pm, then I go out to get some quick food so I can use the rest of the afternoon before I have class to play a little bit. After I get back from class, we start to train we train about 4 to 6 hours per day, everyday. And before important matches, we increase these times to about 10 hours, or more. (02'34" a 03'47").

Bruno has played almost every day over the past 8 years. He plays around 30 hours week. And he's not alone...

#### Frame 4:

- How many hours all day?

- Around 10 hours, maybe more. Sometimes I wake up, take a shower, go to the computer, and go to sleep only on the next day. (03'55'' a 04'02'').

Frame 5:

- Do you play Counter Strike when at home?
- Absolutely, every day play six, seven competitive rounds, I like it a lot.
- And how much time do you spend in a day?
- Around seven hours a day, for sure. (04'02'' a 04'15'').

Frame 6:

It varies a lot, on a week day around two our three hours. But when I'm on vacation, it is a lot more. On the weekends to, it depends a lot, right now it's finals time so with my exams I can't play so much, but usually when I'm on vacation, I play for about 10 hours a day. (04'16'' a 04'33'').

E-Sports fans are very dedicated, spending many hours playing and watching games. This high level of dedication can be seen in other contexts, such as Star Trek fans (Kozinets, 2001) and Football fans (Dionisio & Leal, 2008). But playing online excessively, in extreme cases, can lead to symptoms commonly related to addiction, such as alienation from the real world, degradation of academy performance, loss of sense of time, mood swings, and so on. (Chiu, Lee & Huang, 2004). And there is another problem... Football fandom sometimes is a family heritage (Dionisio & Leal, 2008), and most parents enjoy sharing their fandom with their children. With E-Sports, things are very different...

Frame 8:

Sometimes my grandma calls me to fix her computer and every time I go there, she complains about the time I spend on the computer, that I should go out more often. My mom does it too and my family doesn't really like me playing, but, in the other hand, my friends, that also play they use to encourage me a lot to keep getting better, to keep on playing, playing with them and everything (04'51'' a 05'30'').



Frame 9:

- Who is inside the game world, approves of it. Everyone that knows the game, that knows that you need to dedicate time, they will approve of it. For outsiders, it is kind of hard to understand it. It is like this: you have a friend that plays football, but he is in an amateur league, and he trains everyday, "killing himself", but the doesn't know if he'll ever become a professional. Got it? And Counter Strike is almost like this. Parents and family understand it differently, you konow? That is back in the day (before e-sports was recognized), nowadays it's a different story.

- So, tell me something, how was your relationship with your family? Back when you played the game a lot more hours?

- My family didn't like it. My family didn't like it. My sister used to like it she usually enjoyed watch me play. My mom and my dad never liked it. (05'31'' a 06'18'').

Frame 10:

Well, in the beginning... In the beginning my mom didn't like it very much, because I wasn't working, I was just playing. But after I started to work, I think she saw that it's just a hobby that I enjoy, it is a hobby that I take seriously, that I take every seriously, that's my team takes very seriously. In the beginning it was just my mother that was nagging me and disapproving of my behaviour, but as E-Sports are growing, she now sees it as something that is really growing every day. Today she watches me and even supports me. (06'19'' a 06'51'').

Frame 11:

- Who do you thing would approve of your high dedication to the game?

- I personally think the Brazilian teams. Because well, they are the guys that play it too and other people of the gaming world, the guys who play with me.

- And who do you think that would not approve your behaviour?

- Well, mainly my parents. Because I keep playing a lot everyday. But they tolerate it. Usually they just come check on me all the time, to see what I'm doing. They pass by my door

and look, ask me what am I doing, ask me if I'm playing for too long. But usually we come to a consensus. (6'52'' a 7'28'')

If there a lot of drawbacks related to excessive playing... And a strong resistance from the family... Then why are they so dedicated and committed fans?

## Chapter 1

### The quest for improvement and the Competitive Mindset

#### Frame 13

I've always played games, since I was a child. I've played video games and everything, but nothing ever really attracted me. [AWP, Bruno's weapon of choice when he's playing Counter Strike]. When I started play online and games that have competition, competitive games, I felt a lot more attracted to these games especially to get right rankings, to be better than the other, always trying to stand out, to improve my skills. (07'44'' a 08'14'').

#### Frame 14:

- What motivates me, is the fact that I want to be the best. I want to be the best, me and my brother-in-law feel this way, wanting to be better and better. That's why we dedicated so much, that's why we compete in championships.

- Do you think that you have a certain level of competitiveness?

- Yes, that's from myself. That's typical of me. Today a lot of people play for fun, just to have fun with their friends, sometimes even my friends say to me: "You are taking it to serious". After that you take it easy. Bu I really used to play like this, to be on a top team. Really trying to take it serious, you know? (08'16'' a 8'55')

#### Frame 15:

That's an important question, because I'm a kind of competitive guy. I even have a problem with it. I think it is important, because it drives you to be more. (8'56'' a 9'11'')

Frame 16:

- What motivates you to play so many hours of the game?

- I've never been a fan of competitive games, all my life I used to like cooperative games. Then after I started to play the League Of Legends (a highly competitive online game), I saw the competitive side, in my personal experience, I was living in Sorocaba (a city near São Paulo, Brazil) before I came to São Paulo to go to college and I used to enjoy playing football a lot. I used to play I goalkeeper, and I enjoyed competitions a lot, I was even called to play to an amateur league's club, I used to like it a lot, but when I came to São Paulo, it was not as easy, then I started to miss somethings, and I didn't know at the time what I was missing... Then I discovered that was the lack of something competitive and with League of Legends I found it.(9'12'' a 9'53'')

## Chapter 2

### The Friends Question

Frame 17:

One of things that encourages me the most to keep playing and training is my friends that play with me, they're always calling me to play. I've made a lot of friendships over the years that I play, friendships that have lasted till today. Eve if we don't play the same game anymore, we keep in touch, so it becomes a real friendship starting in the game. The people who play the same that I play they call me to play everytime I'm online and everything, so we are always trying to help each other to get better, giving tips, so it ends up being a really nice exchange of experiences. (09'49'' a 10'53'').

Frame 18:

- I always play with other people. I never play alone, only with my friends. Basically all of my friendships today are online.

- All of them?

- Yes... I'll give you an example, I'm from Rio (Brazilian city) and I'm staying at my friends house here in São Paulo. When I'm in another place, I stay at another friend's house. And everybody plays online with me.

- Most of them from Counter Strike, or you have friends into other games too?

- Not only from Counter Strike, but from all other games that I play. Got it? We usually play together, then we bought a TeamSpeak server, which is kind of like Skype and we walk everyday like this, sometimes we are recording (for YouTube), sometimes we are playing, sometimes we are goofing around, and so on (10'54'' a 11'29'')

Frame 19:

- What's the difference between meeting people online and meeting people outside?

- As I said, online I think things are more honest and less forced. For instance, you are getting involved with a lot of people at the same time. So I think this proximity facilitates things a lot. I think it is easier to get to know somebody and start a friendship, you are with the playing everyday, and you start to talk with them more than you talk to your own family. It is easier to be united. (11'30'' a 11'59'')

Frame 20:

- What has made you play this game for ten years?

- I'll tell you... I've always like competitive games. There are singles player games where you go out on adventures and play the game, but competitive games are much more appealing to me, you can gather your friends, it's something real.

- Ok, but why do you think competitive game motivate you more?

- Why do they motivate me more? I think it is because of the friendships, you can play with your friend, you are can go to a LAN house, see some people, talk. I you were playing video games, you could do those things, but it's not the same thing.

- Have you made a lot of friends playing CS?

- Yes, my girlfriend is the sister my best friend who played with me.

- You met in the game?

- In the game. A lot of long lasting friendships that I have came from CS, true friendships.  
(12'00'' a 12'50'')

### Chapter 3

#### FalleN and the Pro Player Inspiration

Role Model Mimicry – The Consume Doppelganger Effect (Ruvio, Gavish, Shoham, 2013)

#### Frame 21:

I'm Always keeping track of Counter Strike's competitive scene, watching the matches, watching the professional players doing streams. The player I like the most is Fallen, he's the captain of SK Gaming, one of the best teams in the world. He's a guy who gives Counter-Strike classes, he teaches people on his stream, so he inspires me a lot, he is a idol of mine un the game. One of my dreams is to get to his level and to play in the championships he plays (12'50'' a 13'44'')

#### Frame 22:

- I liked it a lot because it's a good Brazilian team showing off Brazil to the foreign. So I think that if I play, I can help my country to have a name in the scene coming here (ESL) supporting the guys, so I can relate to this.

- Is this a mousepad? Can you show us?

- This is a mousepad of the Brazilian team. I came here to buy it and to try to get the team's signatures.

- So you're trying to get their signatures?

- Yes.

- Signatures, like autographs?

- Yes, an autograph.

- Are you going to use this mousepad?

- No, I bought it to use and to get motivation. I'll be there playing and I can turn it around and see their signatures, get motivated to keep playing.

- So, you get motivated to play more?

- Yes.

- Because you see them...

- Yes, they are my inspiration.

- They are your inspiration? Who's your favorite player?

- My favorite is Gabriel Toledo, known as Fallen, because he is really good, so he is the one I like the most. (13'45'' a 14'37'')

Frame 23:

I "mirror" myself a lot, especially on Fallen. (14'36'' a 14'41'').

Frame 24:

My favorite is the real thing, is the Fallen. (14'44'' a 14'44'')

Frame 25:

- Fallen is SK Gaming's captain.

- SK Gaming?

- Yes, he is like... He's an icon on CS, he's the guy who brought development and made the world see Brazilian CS. (14'45'' a 14'57'').

[Fala sem legenda]. This Gabriel Toledo, known as Fallen. He is a professional Brazilian Counter-Strike: Global Offensive player.

In 2015 he was chosen as the most influential person in Brazilian eSports (UOL, 2015). He was voted the 2nd the best Counter Strike player 2016 by HLTV.org. (14'58'' a 15'11'')

Frame 28:

I just left (the event) and we saw SK losing, but, I get home, I'll say to myself "damn, I'll play CS". I just saw the guys playing, shooting, the you say "damn, these guys are really good". Like friday, the first day, I thought "I'll get home and I'll want to shoot everyone, like them". That motivates me a lot. (15'24'' a 15'50'')

## Chapter 4

Losing track of time

The Flow State (Csikszentmihalyi, M., 1996)

Frame 29:

Everytime I play Counter Strike, I start by playing one match, so we win and I keep on playing one match after another, 2, 3 games and sometimes when I realize, it's been 3, 4 hours and I lose track of time. It happens a lot, especially when we're winning or when the matches are too even, so we get too involved in the game so we end up not noticing things that happen around us, losing track of time, and when we realize it, we've spent 3, 4 hours playing. (15'50'' a 16'42'').

Frame 30:

Usually in weekends, when I play more, it's normal that I turn on the computer to play, and when I look, it's been 5, 6 hours. Like, sometimes I say "I'll just play a little bit before I go out", and before I realize it, It's been an hour. It's inevitable. (16'43'' a 17'03'').

Frame 31:

I had a friend, when a played, that spent more then ten hours playing, nonstop, 12 hours, and he didn't care, like it was 4 am and he was playing. (17'03'' a 17'13'')

Frame 32:

- Very often, we start playing, for just a match, it's 9 pm, and when we realize the time, it's 1 am.

- Nonstop?

- Yes, because we start by winning one, then we keep going, win another, then keep going.

- Why do you think you lose the notion of time?

- Excitement. (17'14'' a 17'33'')

Frame 33:

- It's an experience about focus. This is very important. We see that, nowadays, people don't focus on anything and when you're really focused on the game you forget, forget about the thing happening around you. And that's it. So, these are the things that happen when we're relaxed, I think. When you're there focused playing, if the game start getting intense, the rounds go by, it gets to a point when you say "no, now I have to play". Or when they call you a "coming back", which is when you're playing bad and starting to get better, so you get excited, your adrenaline rises and these moments, we stop measuring time. Stop measuring.

- Has it happened to you?



- Yes, it's common that the focus ends and you see it's 5 am rooster crowing, everything happening, people around, the you go "damn man, I have to go to work". It happened to me once. (17'34'' a 18'33'')

#### Last thoughts

This research offers further insight into the E-Sports Fandom context, contributing for the fandom literature, and expanding the work of Dionisio and Leal (2008) related to Sports Fandom affiliation and tribal behavior. (18'38'' a 18'45'')

Behaviors related to community, social benefits and high levels of commitment and dedication match previous findings (Kozinets, 2001; Dionisio and Leal 2008), however... While being a Football fan is a way of playing without major effort and skills (Branscombe et al, 1991), E-Sports fans show a high level of dedication to improve their skills, driven by a competitive-mindset. The family disruption and the role model mimicry found in the E-Sports context are new insights that can expand the Sports related fandom theory. We hope that our work fosters new insights to Fandom theory, and new researches that aim to help lead these guys to a healthy online gaming consumption. (18'46'' a (19'13'')).

## Study 3: Abusive Passion: From Devotion to E-Sports, to Online Gaming Addiction

### RESUMO

O mercado de videogames é o maior e mais influente setor de entretenimento, e os jogadores podem investir várias horas e recursos nos e-sports. Isso pode gerar um comportamento de consumo abusivo, que pode vir a se transformar em vício patológico. O presente estudo aprofunda a compreensão da devoção dos fãs ao esporte eletrônico e sua relação com o consumo abusivo de videogame. Por meio de uma abordagem de métodos mistos, este estudo propõe novos preditores de comportamento de devoção vinculados a características específicas do e-sports, a saber, competitividade e role models e analisa a relação entre devoção, dependência de jogos on-line e culpa. Para construir o modelo teórico, foi aplicado um processo abduutivo através do uso de uma abordagem qualitativa por observação participante, entrevistas semiestruturadas, participação em fóruns de jogos online e a prática de um jogo online. O modelo foi testado em uma pesquisa realizada com 230 fãs de esportes eletrônicos que jogavam regularmente Counter-Strike: Global Offensive. Os resultados sugerem que role models têm um efeito positivo sobre a competitividade, que media parcialmente a relação entre modelos e devoção, e que a devoção aos e-sports media totalmente a relação entre competitividade e dependência de jogos online. A competitividade tem um efeito positivo na devoção aos e-sports, que por sua vez afeta positivamente o vício em jogos online. O vício em jogos online está positivamente associado à culpa e media completamente a relação entre devoção e culpa. O estudo traz uma visão de como o vício em videogames é criado e oferece evidências que podem orientar novas políticas públicas.

Palavras-chave: dependência de jogos on-line, esportes eletrônicos, devoção, competitividade, culpa, videogame, jogo eletrônico.

## ABSTRACT

The video game market is the largest and most influential entertainment sector, and players can invest several hours and resources in e-sports category. This might generate abusive consumption that could turn into pathological addiction. The present study deepens the understanding of fan devotion in e-sports and its relationship to abusive video game consumption. By means of a mixed-methods approach, this study proposes new predictors of devotion behavior linked to specific characteristics of e-sports, namely, competitiveness and the existence of role models, and analyzes the relationship among devotion, online gaming addiction and guilt. To build the theoretical model we applied an abductive process through the use of a qualitative approach by participant observation, semi-structured interviews, participation in online game forums and the practicing of an online game. The model was tested on a survey conducted with 230 e-sports fans who regularly played Counter-Strike: Global Offensive. The results suggest that role models have a positive effect on competitiveness, which partially mediates the relationship between role models and devotion, and that devotion to e-sports fully mediates the relationship between competitiveness and online gaming addiction. Competitiveness has a positive effect on devotion to e-sports, which in turn has a positive effect on online gaming addiction. Online gaming addiction is positively associated with guilt and fully mediates the relationship between devotion and guilt. The study brings an insight into how video game addiction is created and offers evidence that could guide public policies.

**Keywords:** Online gaming addiction, e-sports, devotion, competitiveness, guilt, video game, electronic game.

## Introduction

In 1962, an MIT student called Steve Russel could not imagine the impact his new creation would have throughout the world. Within 50 lines of code, Russel created what is today considered to be the first video game: Space War (Postigo, 2003). From this creation, a new industry flourished in the United States and, after a few years, not only would it become the biggest entertainment industry in the world, but also a highly controversial topic for debate among scientists, families, schools, and politicians.

As soon as video game technology was introduced into contemporary everyday life, researchers started an effort to understand this new consumption phenomenon in a deeper way. Scientific studies from the beginning of the 1980s, considered to be the start of video game age, already questioned whether video games would be friends or enemies of young people's everyday life (Bowman & Rotter, 1983).

More than fifty years after Russel's invention, the video games market established itself as the biggest and most influential entertainment sector, overtaking traditional industries in the area such as music and cinema by a large margin. Such discrepancy can be observed through a direct comparison of some recent records. In 2015, the movie *Star Wars: The Force Awakens* by Walt Disney broke barriers and established a new box office record 24 hours after its release: 120 million dollars on the first day (Guinness, 2016). But Rockstar's Grand Theft Auto, in the same 24 hours, made approximately 815 million dollars (Guinness, 2013), nearly seven times the revenue by Disney's franchise.

The evolution of video games through connectivity led to the emergence of electronic sports, or simply *esports*. Wagner (2007) defines esports as an area of sportive activity in which people develop and train their physical and mental skills by using information technology and communication. Thus, esports differ from traditional video game consumption practices because, instead of common motivations for engaging with a game such as an interest on the plot, playing as an escape from everyday life (Molesworth, 2009) or to develop a sense of community (Griffiths, 2010), esports are played primarily as a form of direct competition (Seo, 2013), be it through team organization (or clans) or individually, within a context of championships or official leagues (Griffiths, Daves & Chappel, 2003).

The recent growth of esports resulted in the development of an ecosystem that mixes electronic games, professional esports, media, and business (Martoncik, 2015), attracting an

audience of more than 380 million enthusiasts around the world (Newzoo, 2018). Such esports fans are involved in an extraordinary way with content linked to the games in question, demonstrating more dedication and desire for engagement than in any other type of sport (Brown, Billings, Murphy & Puesan, 2018).

Both traditional video games consumption practices, such as Massive Multiplayer Online Role Playing Games (MMORPG), a game genre created in 1997 (Yee, 2006), and modern *esports*, a phenomenon still in its infancy (Seo, 2013), can lead players to invest heavily with both time and resources (Ng & Wiemer-Hastings, 2005), and the abusive consumption of this type of experience (and its negative consequences on a player's everyday life) could turn into pathological addiction (Chiu, Lee & Huang, 2004).

Esports fans' behavior can seem extreme to those outside their context, but the phenomenon of devotion is already well known to traditional sports (Dionísio, Lea & Moutinho, 2008). The extraordinary level of passion, intimacy, and dedication of sports fans often reaches real levels of devotion, with extreme behaviors similar to participants of cults and religions (Chung, Berverland, Farrelly & Quester, 2008).

Ortiz, Reynolds, and Franke (2013, p. 7) define devotion as a "passionate state of dedication to a product, a brand, or an experience, through which the consumer in part defines him or herself". Despite the phenomenon of devotion having already been widely debated (Pichler & Hemetsberger, 2007; Pimental & Reynolds, 2004), there are still several doubts about its manifestation and its relationship to the emergence of negative behaviors (Chung et al., 2008), such as abusive consumption.

Previous studies mapped variables that can lead online players to display abusive behavior: past issues with social interaction, experiential elements, and individual and cognitive characteristics can influence online gaming addiction (Kuss & Griffiths, 2012). However, there is a gap in studies that evaluate abusive consumption in the esports context and the relationship between fan devotion and online gaming addiction (Nielsen & Karhurlahti, 2017).

The present work aims to fill this gap by deepening the understanding of fan devotion in a still unexplored context: esports (Seo, 2013) and their relationship to abusive consumption behavior in electronic games. Such factors are explored by means of the proposition of new predictors of devotion behavior linked to specific characteristics of esports, namely competitiveness (Harris & Houston, 2010) and role model (Dix, Phau & Pugnet, 2010), analysis of the relationship between devotion and online gaming addiction, and a revision of Ortiz,

Reynolds & Franke's (2013) proposition on the relationship between devotion and feelings of guilt as a consequence. The relationships are demonstrated by constructing and testing a structural model between the variables, advancing in the efforts of developing studies that explore new contexts and new devotion antecedents linked to psychological and personality factors (Ortiz, Reynolds & Franke, 2013).

### Online gaming addiction

Considering the impact video games have on society and the increasing presence of various types of games reaching a massive public through the internet, online gaming addiction has been widely debated in scientific literature (Charlton & Danforth, 2007; Hsu et al., 2009; Kuss & Griffiths, 2012; Lemmens & Hendriks, 2016; Marques, 2015; Ng & Wiemer-Hastings, 2005; Toker & Baturay, 2016; Wan & Chiou, 2006; Xu, Turel, Yuan, 2012; Yee, 2006).

There is enough evidence to treat video game addiction as a serious problem worthy of study (Kuss & Griffiths, 2012), particularly due to its consequences on an affected player's daily life. Previous studies have shown that online gaming addiction can result in academic performance degradation, low self-esteem (Toker & Baturay, 2015), alienation from the real world, loss of a sense of time, mood swings (Chiu, Lee & Huang, 2004), and, in more serious cases it may even result in physiological problems, such as insomnia, epileptic seizures, and, in rare cases, sudden death (Hsu, Wen & Wu, 2009). Incorporating the internet into video games context brought a new dynamic to addiction relationships, since previous studies have shown that online games have an even bigger potential of causing addictions than offline games (Lemmens & Hendriks, 2016).

A considerable interest on the subject, considering its negative consequences on players' lives (Chiu, Lee & Huang, 2004; Kuss & Griffiths, 2012), led to a debate on how proper diagnostics can be offered in relation to being addicted to video games. Terms such as problematic use, addiction, abusive consumption, and excessive consumption are commonly seen in literature as interchangeable (Toker & Baturay, 2015), but there is a consensus that, for an excessive behavior to be considered indeed an addiction, it must cause a negative impact on the player's life (Xu, Turel & Yuan, 2012; Starcevic, 2017). Kuss and Griffiths (2012) as well as Nielsen and Karhulahti (2017) support this view when debating the limits of high dedication to the game in relation to addiction. Charlton and Danforth (2007) affirm, still, that it is possible

for two people to exhibit the exact same high dedication behavior, differing the pathological from the non-pathological profile by evaluating the impact such a behavior brings to the individual's life.

From this analysis, it is clear that simply playing long hours is not sufficient to define a player as an addict (Wei et al., 2017). In 2013, the American Psychiatric Association (APA) published the most recent version of the Diagnostic and Statistical Manual for Mental Disorders (DSM-5). In this version, the APA mentions for the first time the term "Internet Gaming Disorder", not as a formally recognized pathology, but as a condition requiring more experiments and clinical tests before being considered to be included in the main book as a recognized disorder (APA, 2013). Despite this progress, recent works question this inclusion, the way Internet Gaming Disorder diagnostics are proposed, and even the limitation imposed by the APA by classifying the disorder as an internet gaming addiction, disqualifying the pathology within the context of offline games (Kuss, Griffiths & Pontes, 2017; Lemmens & Hendriks, 2016). Starcevic (2017) furthers such questionings and points out that the dependence model proposed by the APA to define "Internet Gaming Disorder" is restrictive and does not contribute to a better understanding of the various problematic gaming patterns.

Prior to the APA definition, studies used the framework proposed by Brown (1997) as a basis to evaluate the status of addiction (Charlton & Danforth, 2007). According to Brown (1997), online gaming addiction can manifest itself mainly in six ways:

- Salience: the individual's life being dominated by the activity;
- Mood-modification: an extremely positive feeling is derived from the activity;
- Tolerance: the activity needs to be repeated in an increasingly intense way or longer periods of time to achieve the previous levels of mood-modification;
- Withdrawal symptoms: stopping the activity leads to symptoms of negative emotions, discomfort, or physical effects;
- Conflict: the activity leads to conflicts with others or self-conflict;
- Relapse: resuming the activity with the same vigor after trying to quit (Brown, 1997).

Considering that the APA definition is recent and still being debated by the scientific community (Kuss, Griffiths & Pontes, 2017; Lemmens & Hendriks, 2016; Starcevic, 2017), the previous tendency in the field was followed (Charlton & Danforth, 2007; Xu, Turen & Yuan, 2012) and Brown's model was utilized (1997) to base the analysis of video game addiction.

## Devotion

The high level of commitment from players towards esports transcends the trivial relationship between game and player, and this passion for the sport, teams, and professional players presents similar characteristics to those observed by Pimentel and Reynolds (2004) as well as Pichler and Hemetsberger (2007) in their works on devotion.

Pimentel and Reynolds (2004), in their seminal paper, define devotion as the significance beyond the utilitarian or commercial value of the object, which becomes the vehicle for a transcendental experience. From the long lines to buy Harry Potter books to the trips from one end of the country to the other to pay homage to a deceased idol (Ortiz, Reynolds & Franke 2013), such behaviors, often seen as extreme by the general public, are increasingly common examples of the reality of contemporary consumption.

Pimentel and Reynolds (2004) highlight that fans become devoted through a process of sacredness, thus developing an affect commitment towards the object of devotion. This specific type of commitment manifests itself in many ways: fans tend to identify themselves with the object, and loyalty to it becomes part of their self-concept; they engage in a long-lasting involvement with the object of devotion, surviving even the experience of negative feelings related to the object of devotion; they begin to employ religious references in relation to the object. The authors also state that, beyond sacredness, the devotees, differently from regular consumers, engage in proactive behaviors to sustain devotion, which may include rituals, trips, exposition of the brand in pieces of clothing, creation of sanctuaries, among others.

Within the context of esports, major championships are rather common, and live events related to such competitions are meeting points for game devotees (Seo, 2013). In 2016 the grand finals of the Counter Strike international championship ESL took place in Brazil, for the first time. Thousands of fans from all over the country traveled to watch in person their idols playing live, and many of these devotees made enormous efforts to be there (Marques e Veludo-de-Oliveira, 2017). Pilgrimages are traditional manifestations of religiousness and devotion, and an essential part of the process of sacredness (Belk, Wallendorf, & Sherry 1989). Pimentel and Reynolds (2004) present references to pilgrimages also among American football fans, who follow their teams anywhere they might be playing important games, showing pro-active sustain of their devotion.



Approximating religiousness to the context of devotion is reinforced by Pichler and Hemetsberger (2007), who affirm that beyond devotion to sacred objects, personal representatives can be equally worshiped, since these personify the values and beliefs linked to the object of devotion. In relation to the cult to personal representation, Marques and Veludo-de-Oliveira (2017) highlight the strong relationship between esports fans and professional players, especially Brazilian worshippers of the player known as FalleN. Gabriel Toledo (also known as FalleN) is the captain of SK Gaming, a Counter Strike team, and is recognized as one of the most important players in the Brazilian esports scene. Marques and Veludo-de-Oliveira (2017) identify religious references to the professional player, such as calling him "The True One", and claiming that he is the great charismatic leader of Brazilian esports, a reference to a type of prophet, as seen in Belk, Wallendorf, and Sherry (1989). As the Brazilian esports scene is one of the strongest in the world (Marques, 2015), and past research claimed for more studies around online gaming outside the Asian context (Kuss & Griffiths, 2012), the country was chosen to be the focus of this research.

Esports worshippers also collect objects with ritualistic meaning, for instance, mousepads signed by the players. Such objects become part of their rituals linked to these fans' devotion to their favorite team (Marques e Veludo-de-Oliveira, 2017). Rituals, collection of sacred objects, pilgrimages, and devotion to a prophet are characteristic elements of a process of sacredness, and common to other types of devotion, from traditional sports teams (Ortiz, Reynolds and Franke, 2013) to computer brands (Belk and Tumbat, 2006).

Despite the similarities between devout traditional sports fans and esports fans, Dionísio, Leal, and Mountinho (2008) claim that being a fan of a traditional sports team is a way of participating, without making a major effort or without the ability to play the sport itself. This view is supported by Zillman et al. (1989), who asserts that participating in a group of sports fans does not demand any skill in the sport, making the decision to participate in the activities as a fan cost little to individuals. In esports, on the other hand, fans are highly dedicated to play and practice their skills (Seo, 2013). In line with the dedication shown by the top players in the esports scenes, casual players seek to imitate pro players' training behavior, even if they do not share the status of playing as a professional activity (Nielsen & Karhlahti, 2017).

Lee and Schoenstedt (2011) compare directly the reasons to consume, support, and play traditional sports to esports, and developing the skills to play the game in question is among the reasons that impact the time spent playing esports, a variable that does not impact significantly traditional sports. This fact reinforces Nielsen and Karhlahti's view (2017), who claim that

esports fans dedicate themselves to improve their abilities, and this is a major part of the esports experience.

Thus, contrary to traditional sports fans, devotion to esports is accompanied by a high degree of dedication to the game itself on behalf of the players. Such dedication translates not simply into activities to sustain devotion, such as watching the team playing or participating in major events related to the game (Ortiz, Reynolds & Franke, 2013), but also into several hours playing and practicing with a team, regularly surpassing 12 uninterrupted hours of play (Marques, 2015). Considering the extraordinary dedication esports fans display in comparison to traditional sports (Brown, Billings, Murphy & Puesan, 2018) and the volume of hours of practice necessary to develop their abilities in the game (Nielsen & Karhlahti, 2017), while taking into consideration that the total time dedicated is directly related to online gaming addiction (Kuss & Griffiths, 2012; Lo et al, 2005), it is possible to infer the following hypothesis:

*H1 - Devotion to esports has a positive effect on online gaming addiction*

This hypothesis seeks to cover an important gap in literature as brought up by Pichler and Hemetsberger (2007) and Chung et al. (2017), who demand more studies that analyze the transition from devotion to pathological relationships of consumption such as addiction.

## Antecedents and consequences

Online gamers are influenced by many factors that may lead to addiction. Not only their antecedents but also the consequential behavior factors were summed up in extensive prior research (Kuss & Griffiths, 2012; Toker & Baturay, 2015; Turel & Yuan, 2012). Despite the body of research already having mapped antecedents and consequences that influence online gaming addiction, there are still relationships between variables that have not been studied and need to be approached in works about online gaming addiction, such as parental relationships (Xu, Turel & Yuan, 2012), differences between peer and family influence (Wei et al, 2017), differences between personality traits (Toker & Baturay, 2015), competitiveness and sense of community (Lemmens & Hendricks, 2016). It is also necessary to conduct studies specifically linked to the esports context, a topic that has not yet received attention from researchers, in contrast to the attention given to MMORPGs (Martoncik, 2015; Nielsen & Karhulahti, 2017),

and that take into consideration cultural differences, since most studies are focused on Southeast Asia (Kuss & Griffiths, 2012).

One of the characteristics that differentiate esports from other kinds of electronic games is the high degree of competitiveness among players (Martoncik, 2015; Seo, 2013). The study of competitiveness in the context of traditional sports has an already established literature. Described as "a desire to win in interpersonal situations" (Harris & Houston, 2010, p. 3), researchers examined, in a seminal study in the field, competitive behavior as a personality trait directly linked to motivation in reaching personal goals (Helmreich & Spence, 1978).

Since, by definition, esports are "primarily played to improve consumer abilities in the use of digital technologies and playing computer games as a form of competition" (Seo, 2013, p. 1544), previous research already mapped that esports players seem to share a competitive profile (Marques & Veludo-de-Oliveira, 2017), differently from the profiles of players of other types of games such as MMORPGs (Kuss & Griffiths, 2012).

Hussain and Griffiths (2009) report that a competitive profile in MMORPG players is one of the risk factors that can lead to online gaming addiction. Such connection has been confirmed in previous studies (Cole & Griffiths, 2007). Even though there is clear evidence of the relationship between competitiveness and addiction in MMORPGs, this link must be revised within the esports context.

Despite being characterized by high competitiveness, most esports have a steep learning curve (George, Ducan & Cook, 2015), and should the consumer perceive that they are not improving their skills adequately in the game, there is a good chance this player will give up on the esports in question (Jang & Byon, 2019). Dedicated esports players are not limited to playing in order to improve their skills. Watching YouTube channels, professional players, streams, replays of professional matches, studying strategies, are all part of the routine for dedicated players who seek to improve their abilities in the game (Kari & Karhulahti, 2016).

As predicted by Ortiz, Reynolds, and Franke (2013), participation in sustaining behaviors as an essential element of devotion is also a necessary characteristic for a player's technical evolution in the esports context. Should the player not become involved in external activities, becoming a fan of the game and not just a player, the individual competitiveness factors can lead to frustration due to the game's steep learning curve. This fact is corroborated by Jang and Byon (2019), who demonstrate that esports fans are more prone to develop the intention to engage in the game in comparison to non-fans.

The routine of sustaining devotion behaviors increases players' exposure to their favorite teams and pro players, and their devotion to esports is shared among hundreds of fans in live events (Marques & Veludo-de-Oliveira, 2017). Contrary to MMORPGs, if a competitive player does not sustain devotion behaviors, they are less likely to demonstrate addictive behaviors, since that devotion-related activities are essential to developing a competitive player's full potential (George, Ducan & Cook, 2015; Kari & Karhulahti, 2016).

However, should the player be an esports fan, a competitive profile is one of the motivating factors that lead gamers to a high degree of dedication and practice with their peers, and one of the antecedent factors that can lead to an elevated hours consuming the game (Lee & Schoenstedt, 2011).

Thus, we can infer the following hypotheses:

*H2 - Competitiveness has a positive effect on devotion to an esports*

*H3 - Devotion to an esports completely mediates the relationship between competitiveness and online gaming addiction*

The high contact dedicated esports fans have with devotion elements, particularly with teams and pro players, brings forth another consequence to the relationship between players and games. Bush, Martin, and Bush (2004) state the traditional sports athletes are important role models, strongly influencing adolescents' behavior.

A role model is defined as someone the consumer is in contact with and who can potentially influence their consumer decisions (Latif, Saleem & Abideen, 2011). According to this definition, parents or people in constant contact with the individual may become role models to them. Previous research approaches this very influence and its impact on consumer behavior (Bush, Martin & Bush, 2004). However, studies on the topic also suggest that accomplished individuals, even without direct contact to the consumer, can serve as role models (Lockwood & Kunda, 1997).

Martin and Bush (2000) posit that there are two types of role models: direct, linked to parents and family; and vicarious, linked to favorite athletes or artists. Role model behavior theory applied to traditional sports fans is well established in marketing literature (Clark, Martin & Bush, 2001; Dix, Phau & Pugnet, 2010; Martin & Bush, 2000), and there is clear evidence that consumer behavior is affected by the way consumers see their favorite athletes, including factors such as brand loyalty (Dix, Phau & Pugnet, 2010).

Considering the existence of elements that approximate traditional sports to esports (Lee & Schoenstedt, 2011), evidence of the influence famous athletes as behavior role models for adolescents (Bush, Martin & Bush, 2004), the importance of personal figures as personification of values and beliefs linked to objects of devotion (Pichler & Hemetsberger, 2007), and the strong identification of esports players with professional players (Marques & Veludo-de-Oliveira, 2016) we can infer that:

*H4 - Role models have a positive effect on devotion to an esports*

Concerning role models in an esports context, it is worth highlighting that professional players display high competitiveness. Elements originating from competitive behavior such as rivalry between teams are common amid high performance athletes (Ross, James, & Vargas, 2006). The way competitiveness is displayed to the public and fans is an essential characteristic of athletes and a constitutive part of athlete brand image, as demonstrated by Arai, Ko, and Kaplanidou (2013).

Consumers who idolize celebrities usually emulate their behaviors and styles (Choi & Rifon, 2007) and change their attitudes and actions according to their role models (Bush, Martin & Bush, 2004; Dix, Phau & Pougnet, 2010). Considering that competitiveness is an essential behavior element for a professional player and constitutive part of their image as a role model (Arai, Ko & Kaplanidou, 2013), we can infer the following hypothesis:

*H5 - Role models have a positive effect on competitiveness*

Besides mapping antecedents, previous studies also mapped the consequences, both related to online gaming (Toker & Baturay, 2016) and to the devotion to a sport (Ortiz, Reynolds & Franke, 2013). Despite several additional consequences in online gaming having been previously studied, such as lower academic performance (Kuss & Griffiths, 2012) or lower self-confidence (Toker & Baturay, 2016), studies that deal with the consequences of devotion are rare. Such problem is a research opportunity, as pointed out by Ortiz, Reynolds, and Franke (2013).

Previous research demonstrated that there is a false stereotype that consider dedicated video game players as socially inept or unpopular individuals (Kowert, Festl & Quandt, 2014). Due to social stigmas related to the excessive consumption of video games, players dedicated to esports lie about the amount of time dedicated to the game, reporting that they play fewer hours than in reality (Nielsen, 2015; Nielsen and Karhulahti, 2017). This defensive behavior,

which seeks to hide a possible transgression of social norms, is comparable to guilt from the player's part.

Guilt derives from the discomfort or agony that appears from the personal failure or transgression of an ethical standard (Arli, Leo & Tijtono, 2016). Smith et al. (2002) state that an identified flaw that is not exposed to the public results in guilt. Ortiz, Reynolds, and Franke (2013) demonstrate that worshippers of traditional sports teams do not experience guilt. That is because guilt results from an individual acting against their own ethical and moral standards (Burnett & Lunsford, 1994), and as devotees consume and behave according to their participation in a community with its own ethical and moral values, feelings of guilt are not developed (Ortiz, Reynolds, and Franke, 2013).

However, contrary to traditional sports fans, esports fans engage with a still stigmatized social behavior (Nielsen & Karhulahti, 2017). Dedication to traditional sports is accepted by society at large, often being reason of pride for a family if dedication to a team is inherited through generations (Dionísio, Leal, and Moutinho, 2008). On the other hand, dedication to esports and video games in general is met with resistance by families (Marques & Veludo-de-Oliveira, 2017) and with estrangement from the public outside this context (Taylor, 2012).

Factors such as old stigmas in relation to video game consumers' profile, added to the false understanding that all video game players are socially awkward and unpopular (Kowert, Festl & Quandt, 2014) as well as the high specificity and complexity of the group of symbols, specialized language, or other elements that constitute the esports ethos (Seo, 2015), and the fans' need to dedicate a high volume of hours to sustaining behavior in comparison to traditional sports (Lee & Schoenstedt, 2011) contribute to the family's and society's difficulty in accepting esports fans' behavior (Nielsen & Karhulahti, 2017).

Although devotion does not result in guilt as postulated by Ortiz, Reynolds, and Franke (2013), since players do not consider themselves to be breaking an internal social rule of the group, there is a consensus in literature that, from the moment the players feel that they are abusing the volume of hours or displaying symptoms of addiction, strong feelings of guilt start appearing as consequence (Chappel, Eatough, Davies & Griffiths, 2006; Charlton & Danforth, 2007; Beranuy, Carbonell & Griffiths, 2013; Nielsen & Karhulahti, 2017).

Thus, devotion to an esports, which naturally requires considerable dedication, contrary to what was predicted by Ortiz, Reynolds and Franke (2013), may in fact lead the player to feelings

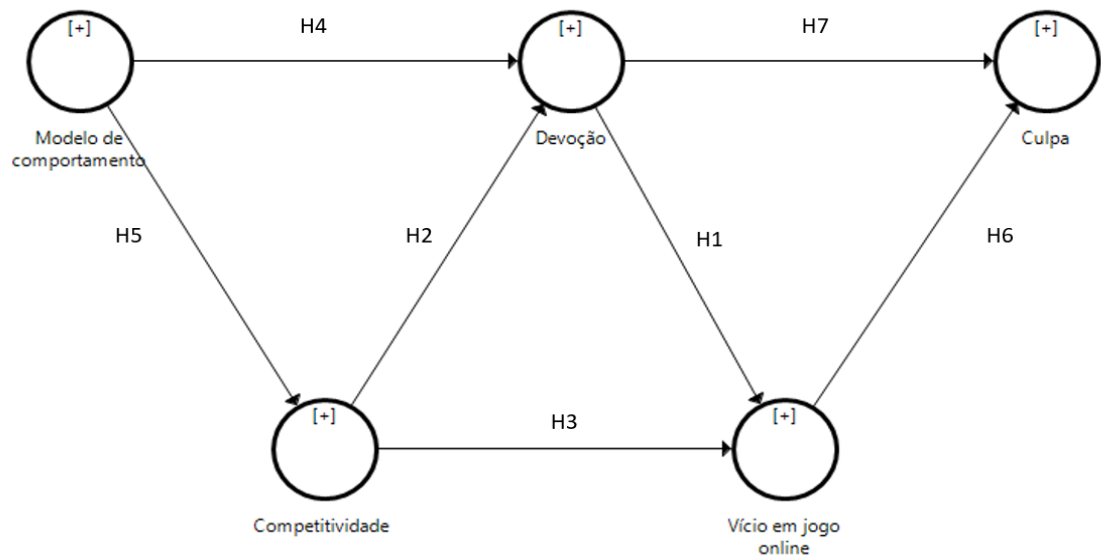
of guilt, should the presence of elements or symptoms indicate that their behavior can be considered excessive or abusive by their families or society.

Thus, we can derive the following hypotheses:

*H6 - Online gaming addiction is positively associated with feelings of guilt*

*H7 - Online gaming addiction completely mediates the relationship between esports devotion and guilt*

Finally, the following antecedents and consequents model of devotion to esports and online gaming addiction can be proposed:



**Figure 1- Theoretical model of antecedents and consequents of the relationship between devotion and online gaming addiction**

## Method

In order to test the theoretical model, a survey was conducted with esports fans aged from 17 to 25, who regularly play *Counter Strike: Global Offensive*. This game was chosen for several reasons: it is the most popular esports in Brazil and it was the best-selling video game of 2015 in the biggest online games marketplace, Steam (Uol, 2015); its competitive scene is one of the most relevant in the world, having the second highest prize pool in championships - U\$19 million only in 2017 (Uol, 2017); and the representation of Brazilian teams is somewhat

relevant in global competitions, considering that the four biggest prize earners in Counter Strike tournaments are Brazilian (e-Sports Earnings, 2018).

Counter Strike is a first-person shooter genre, and the game consists of two teams of five players competing against each other in the same map. Contrary to simulation games and MMORPGs, the players do not role play nor develop their characters.

Data was collected by means of a survey, constructed with scales that were adapted from previous studies (see Table 1 and appendix). The original scales were translated into Portuguese by bilingual professionals utilizing Malhotra's (2006) recommended back-translation method. All scales are in 5-point Likert format (1 - Strongly disagree to 5 - Strongly agree). All constructs were modeled utilizing reflective indicators, i.e., it is assumed that the construct is the cause of variation in the indicators, and these are interchangeable, highly correlated, and can be omitted without changing the construct's meaning (Hair et al., 2014; Hair et al.; 2016). At the end of the survey, additional data was obtained (gender, age, family composition, marital status) to characterize the sample and to be used as control variables. None of the control variables interacted in a significant way with the model, thus, they are not shown in the analysis.

The sample was obtained during the Blast Pro Series event on 22 March 2019. The event was one of the most important tournaments to Counter Strike's competitive scene. It was chosen due to the high concentration of players. 276 surveys were collected and, after analyzing incomplete answers, total sample was at 230 surveys. A pre-test during a previous event with the presence of esports fans (Campus Party 2019 - São Paulo/SP) was conducted to check for possible revisions in the scales, response time, and dropout rate. After analysis, the survey was considered satisfactory.

## Analysis and Results

A normality test on the data was initially conducted to verify the most adequate structural equation method for the analysis. The Mardia test (Cain et al., 2016) was employed to analyze the normality of the sample by means of kurtosis and asymmetry. Test results showed that the sample does not display a normal distribution (Kurtosis  $\beta = 1431,70$ ,  $p < 0,01$ , and Asymmetry  $\beta = 337,29$ ,  $p < 0,01$ ). Considering this result, Hair et al.'s recommendation (2014, 2017) is to employ a non-parametric method to evaluate the model. Thus, as suggested by Hair et al. (2014), the Partial Least Squares (PLS) technique was employed. Hair et al.'s (2016) method



of minimum sample verification through maximum number of structural ways pointing to the same construct in the proposed model was used to analyze the statistical power of the sample. According to the authors, for a statistical power of 80% with significance level of 1% and detection capacity ( $R^2$ ) of 0,10, the minimum sample would be 176 respondents, guaranteeing that the sample's actual number of 230 surveys is sufficient.

Respondents were all men aged from 18 to 35, averaging 22. 88% are single. Concerning living, 10% live with a spouse/partner, 1% with friends, 10% alone, and 78% with family. The focus on a male audience is justified by analyzing the average esports demographics, which is predominantly young and male: 85% are men and 61% younger than 25 (Minotti, 2016).

Following the two-step structural equation analysis model proposed by Anderson and Gerbing (1988), the measurement model was analyzed (validity and reliability of constructs), followed by the structural model and testing of the proposed hypotheses. In addition to such analyses, a Bootstrapping test (5000 samples) was conducted to analyze the significance of the pathways proposed in the model (Hair et al [2017]) and to test for mediation hypotheses.

#### Analysis of measurement model

To validate the measurement model, the following criteria were analyzed: internal consistence, convergent validity, reliability, and discriminant validity (Hair et al., 2014, 2016, 2018; Ballestar et al., 2017).

Concerning the analysis of internal consistency of latent variables of the measurement models, two criteria were employed: Cronbach's Alpha and composite reliability, both criteria having variable values between 0 and 1, and reference value of 0,7 or more for high internal consistency (Hair et al., 2016). As demonstrated in Table 2, all construct present high values of internal consistency within the parameters proposed by Hair et al. (2016).

Convergent validity was verified by analyzing Average Variance Extracted (AVE) (Cheah et al., 2018). According to the analysis model proposed by Hair et al. (2016). Both indicators that compose the constructs were evaluated firstly for their outer loading value. The ones below 0.4 were removed from the model (the indicators that were removed from the model are available in the appendix). Then, the constructs that had an AVE below 0.5 had their indicators analyzed, and the indicators that presented outer loading values below 0.7 were removed from the model, until the construct's AVE presented values above the acceptable

standard for confirmation of convergent validity of 0.5 (Hair et al., 2016). After the procedure, all convergent validity indicators presented values within the parameters established by the literature (Hair et al., 2014; Ramayah et al., 2017), as seen in Table 2.

	<b>CRONBACH'S ALPHA</b>	<b>COMPOSITE RELIABILITY</b>	<b>AVERAGE VARIANCE EXTRACTED (AVE)</b>
<b>COMPETITIVITY</b>	0.764	0.862	0.677
<b>GUILT</b>	0.812	0.876	0.639
<b>DEVOTION</b>	0.913	0.930	0.624
<b>ROLE MODEL</b>	0.830	0.878	0.591
<b>ONLINE GAMING ADDICTION</b>	0.716	0.824	0.540

**Table 2- Internal Consistency and Convergent Validity**

Reliability was analyzed by means of the correlation between latent variables and each outer loading. According to Hair et al. (2016), outer loading values must be higher than 0.7 to indicate strong reliability, and the item should be removed from the measurement model only if it presents values below 0.4. As seen in Table 3, all items under analysis present values near or superior to 0.7 as recommended by Hair et al. (2016). The codes in Table 3, as well as the scales they refer to, are available in the appendix.

	COMPETITIVITY	GUILT	DEVOTION	ROLE MODEL	ONLINE GAMING ADDICTION
<b>ADD7</b>					0.686
<b>ADDI1</b>					0.777
<b>ADDI2</b>					0.774
<b>ADDI6</b>					0.698
<b>COMP2</b>	0.802				
<b>COMP3</b>	0.755				
<b>COMP5</b>	0.903				
<b>DEVO1</b>			0.679		
<b>DEVO2</b>			0.741		
<b>DEVO3</b>			0.779		
<b>DEVO4</b>			0.860		
<b>DEVO5</b>			0.855		
<b>DEVO6</b>			0.795		
<b>DEVO8</b>			0.795		
<b>DEVO9</b>			0.802		
<b>GLTY1</b>		0.823			
<b>GLTY2</b>		0.783			
<b>GLTY3</b>		0.742			
<b>GLTY4</b>		0.847			
<b>RMOD1</b>				0.769	
<b>RMOD2</b>				0.790	
<b>RMOD3</b>				0.821	
<b>RMOD4</b>				0.679	
<b>RMOD5</b>				0.777	

**Table 3 - Reliability**

Discriminant validity determines the extent that a construct is really distinct from other construct by means of empirical standards; that is, it determines whether the construct is unique and captures a phenomenon that is not represented by other constructs in the model (Hair et al., 2014). To verify the discriminant validity of the model, recent literature suggests using the Heterotrait-Monotrait Ratio (HTMT) as the most reliable indicator of discriminant validity, instead of methods such as Fornell's and Lacker's or of cross-loadings analysis (Ramayah et al., 2017; Cheah et al., 2018; Hair et al., 2019).

Kline (2011) establishes that HTMT indexes must be below 0.85 to assure the discriminant validity of a construct. As seen in Table 4, all indexes are below the limit established by literature, thus confirming the discriminant validity of the model.

	COMPETITIVITY	GUILT	DEVOTION	ROLE MODEL	ONLINE GAMING ADDICTION
COMPETITIVITY					
GUILT	0.133				
DEVOTION	0.512	0.133			
ROLE MODEL	0.210	0.111	0.401		
ONLINE GAMING ADDICTION	0.239	0.714	0.299	0.188	

**Table 4 - Discriminant Validity (HTMT Ratio)**

### Structural Model Analysis

For the structural model analysis, Hair et al. (2014) propose to utilize the following criteria to verify the quality of the proposed model: coefficient of determination ( $R^2$ ), cross-validated redundancy ( $Q^2$ ), path coefficient, and effect size ( $f^2$ ).

Such criteria are utilized since, differently from the CB-SEM method, which focuses on model fit indexes as standard adjustment to the model, PLS evaluates the quality of the model through the capacity of predicting the relationships of endogenous variables (Hair et al., 2016). Thus, PLS-SEM does not have a good standard of statistic fitting, and despite efforts to seek indicators that would bring this type of analysis to the method, the literature's consensus is that studies that employ PLS-SEM must report statistics that evaluate the predictive capacity of the model as a way of analyzing its quality, omitting model fit indexes (Hair et al., 2014; Henseler, Hubona & Ray, 2017; Hair et al., 2018; Hair, Sarstedt & Ringle, 2019).

$R^2$  is defined by Hair et al. (2016) as the "total variance explained in the construct", resulting in an analysis of predictive capability of the latent variable in question by the proposed model. The values proposed by Hair et al. (2014) for the determination coefficient are 0.75, 0.50, 0.25 for substantial, moderate, and weak prediction, respectively. It is important to highlight that  $R^2$  analysis should be conducted with care, considering that models with fewer predicting variables naturally present lower  $R^2$ , and in some cases  $R^2$  values as low as 0.10 can be satisfactory given the conditions of the model (Hair et al., 2014; Shmueli, Ray, Estrada & Chatla, 2016; Hair et al., 2018).

Thus, Hair et al. (2014) recommend analyzing  $R^2$  alongside  $f^2$ , calculated with the inclusion and exclusion of constructs isolated from the model and the verification of relevance

impact on the model, and  $Q^2$ , which calculates the predictive capacity of the model by means of a technique called *blindfolding*, consisting in omitting part of the data matrix and then utilizing the estimative of the model parameters to predict the occluded parts.

Hair et al. (2014) determine that  $Q^2$  values above 0 represent predictive relevance to the construct, and  $f^2$  values of 0.02, 0.15 and 0.35 represent, respectively, small, medium, and large effects.

Finally, Hair et al. (2016) warn that structural model assessment must consider the non-existence of collinearity between constructs. Hair et al. (2018) recommend employing the Variance Inflation Factor (VIF) indicator to analyze collinearity, so that VIF indicators must present values below 3 to indicate inexistence of collinearity.

The results of the determination coefficient, as seen in Table 5, demonstrate that the constructs guilt ( $R^2 = 0.307$ ), devotion ( $R^2 = 0.277$ ), and online game addiction ( $R^2 = 0.043$ ) present weak to moderate values within the standard suggest by Hair et al. (2014). When analyzing the structure of the proposed model, low  $R^2$  values were expected, since the model proposes few predictive constructs for each variable under analysis. Hair et al. (2016) consider that models with a reduced number of constructs naturally present low  $R^2$  indicators and analyzing them should consider the proposed theory's context.

	$R^2$	$Q^2$
<b>COMPETITIVITY</b>	0.036	0.019
<b>GUILT</b>	0.307	0.182
<b>DEVOTION</b>	0.277	0.155
<b>ONLINE GAMING ADDICTION</b>	0.043	0.021

**Table 5 -  $R^2$  and  $Q^2$**

Concerning the construct online gaming addiction, since it has devotion as the only predictive factor in the proposed model, and considering that the PLS analysis did not seek to recognize all relevant variables of the model, but to establish predictive relationships (Vinzi, Chin, Henseler & Wang, 2010), the determination coefficient value can be considered satisfactory.

$Q^2$  and  $f^2$  indicators demonstrate the quality of the model's predictive capacity, since all constructs present  $Q^2$  above reference values ( $Q^2 > 0$ ), and all proposed paths present a significant effect size, as seen in Table 6.

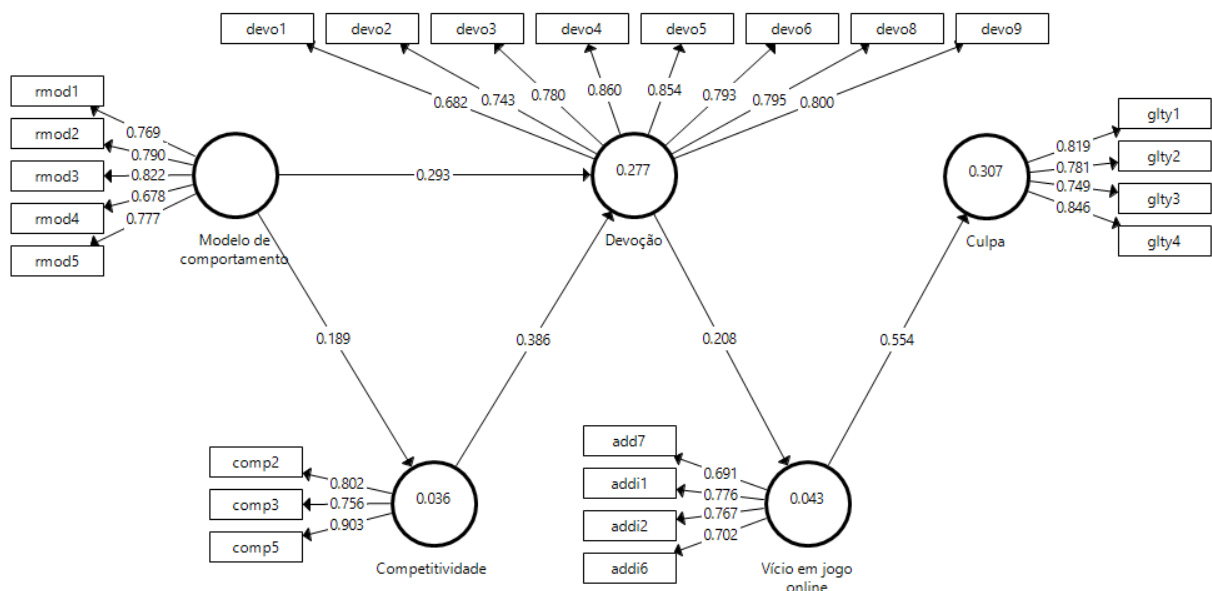
Finally, the model does not present collinearity problems, since all the relationships demonstrate VIF values below 3, as proposed by Hair et al. (2014).

	$f^2$	VIF
COMPETITIVITY -> DEVOTION	0.199	1.037
DEVOTION > ONLINE GAMING ADDICTION	0.045	1.000
ROLE MODEL -> COMPETITIVITY	0.037	1.000
ROLE MODEL -> DEVOTION	0.144	1.037
ONLINE GAMING ADDICTION -> GUILT	0.444	1.000

**Table 6 -  $f^2$  and VIF**

### Hypothesis testing

To test the hypothesis predicted in the theoretical model, it was employed Hair et al.'s (2016) proposition, which postulates that path model coefficients, p-values, and t-statistics values should be analyzed through a *bootstrapping* procedure. For a path to be considered significant, and thus reject null hypothesis, indexes must be above reference values  $t > 1.96$  and below p-value  $< 0.001$  (Hair et al., 2016).



**Figure 2 - Model and Path Coefficients**

In Figure 2 all correlations between constructs and their respective indicators can be observed, as well as their *outer loading* values. Hair et al. (2016) specify that indicator loads in

the construct must be above 0.7. Loads between 0.5 and 0.7 are not problematic and should be maintained in the model. Thus, it is possible to affirm that the model demonstrates good indicators of *outer loading*, considering that all indicators present loads near or above 0.7.

In Table 7 the path coefficients (B), p-values, and t-statistic can be observed. Hypotheses H1, H2, H4, H5, and H6 present t-statistics indexes above 1.96, and p-values below 0.01, which, according to the parameters indicated by Hair et al. (2014), leads to the confirmation of related hypotheses.

HYPOTHESES.	RELATIONSHIP	B	STANDARD DEVIATION	T-STATISTICS	P-VALUES	ACCEPTED HYPOTHESIS?
H1	Devotion > Online gaming addiction	0.208	0.071	2.936	0.003*	Yes
H2	Competitiveness -> Devotion	0.386	0.063	6.107	0.000*	Yes
H4	Role model -> Devotion	0.293	0.054	5.374	0.000*	Yes
H5	Role model -> Competitiveness	0.189	0.065	2.915	0.004*	Yes
H6	Online gaming addiction -> Guilt	0.554	0.054	10.251	0.000*	Yes
REFERENCE VALUE				>1,96	<0,01	

**Table 7 - Hypothesis testing**

To test Hypotheses 3 and 7, related to mediation, a specific procedure for mediation analysis in SEM-PLS developed by Nitzl, Roldan, and Cepeda (2016) was employed. According to Hair et al. (2016), initially the mediation hypothesis should be analyzed from the significance of paths between the proposed variables. Mediation hypothesis occurs when the paths from independent variable to mediator, and from mediator variable to dependent variable are significant, and, at the same time, the path between the independent variable and the dependent variable is significant (partial mediation) or not significant (total mediation) (Baron & Kenny, 1986).

Despite Baron & Kenny's (1986) method being the most common method to assess mediation, there are more modern and adequate models to the PLS process in the literature (Zhao et al., 2010; Nitzl et al., 2016; Hair et al., 2019). The model proposed by Nitzl et al. (2016) considers that partial mediation can be considered complementary (should the path present a positive sign) or competitive (should the path present a negative sign), and that the best way to assess the mediation hypothesis is by means of the following sequence:

1. Indirect effect test between variables
2. Indirect effect power test to determine mediation size
3. Significance of indirect effect test

Thus, the first step of the analysis was assessing the indirect effect between the variables. Relationships were added to the model and a bootstrapping with 5000 samples was performed to test direct effects between variables.

	<b>B</b>	<b>T STATISTICS</b>	<b>P VALUES</b>
<b>COMPETITIVITY -&gt; DEVOTION</b>	0.386	6.162	0.000*
<b>DEVOTION &gt; ONLINE GAMING ADDICTION</b>	0.230	2.931	0.003*
<b>COMPETITIVITY &gt; ONLINE GAMING ADDICTION</b>	-0.055	0.821	0.412
<b>ONLINE GAMING ADDICTION -&gt; GUILT</b>	0.570	10.539	0.000*
<b>DEVOTION -&gt; GUILT</b>	-0.067	0.980	0.327
<b>REFERENCE VALUES</b>		>1,96	<0,01

**Table 8 - Mediation tests**

As seen in the results displayed in Table 8, there is a significant effect between competitiveness and devotion ( $p < 0.01$ ), and between devotion and online gaming addiction ( $p < 0.01$ ). However, the direct relationship between competitiveness and online gaming addiction is not significant ( $p = 0.412 > 0.01$ ). Similarly, there is a significant relationship between devotion and online gaming addiction ( $p < 0.01$ ), and between online gaming addiction and guilt ( $p < 0.01$ ). However, the direct relationship between devotion and guilt is not significant ( $p = 0.327, > 0.01$ ). Considering this analysis, there is evidence of total mediation (Baron & Kenny, 1986), and according to Nitzl et al.'s methodology, the power and significance of the indirect effect should be assessed to confirm the hypotheses.

	<b>B</b>	<b>T STATISTIC S</b>	<b>P VALUES</b>
<b>ROLE MODEL -&gt; COMPETITIVITY -&gt; DEVOTION</b>	0.073	2.668	0.008*
<b>DEVOTION &gt; ONLINE GAMING ADDICTION -&gt; GUILT</b>	0.131	2.730	0.006*
<b>REFERENCE VALUES</b>		>1,96	<0,01

**Table 9 - Power and significance of indirect effect**

According to table 9, the values of power of the indirect effect and significance of indirect effects between role model, competitiveness, and devotion ( $t = 2.668$ ;  $p = 0.008$ ), and devotion, online gaming addiction and guilt ( $t = 2.730$ ;  $p = 0.0006$ ) demonstrate that, according to the method proposed by Nitzl et al. (2016), the mediation hypotheses proposed by H3 and H7 can be accepted.



## Final Remarks

Results confirm Hypothesis 1, demonstrating the positive effect of devotion on online gaming addiction. By confirming the proposed hypothesis, the present work consolidates another antecedent variable to online gaming addiction, advancing Toker and Baturay's (2015) as well as Xu et al.'s (2012) findings, who proposed models of antecedents and consequents to the addictive behavior under analysis.

The esports context also provides advancements in the studies on online gaming addiction, since the current theoretical basis focuses most of its studies on other game genres, such as MMORPGs (Kuss & Griffiths, 2012). Deepening the relationship between esports and addiction further develops the debate started by Nielsen & Karhulahti (2017), who question the real difference between the fan and the addict.

The positive effect demonstrated between devotion and addiction also contributes to the theoretical body linked to the study of devotion, meeting Pimentel and Reynolds' (2004) and Pichler and Hemetsberger's (2007) demands concerning the need for new research on pathological consumption and possible forms of abuse related to devotion to a brand or activity. As initially suggested by Pichler and Hemetsberger (2004), devotion can, indeed, contribute directly to the development of a condition of pathological consumption, in this case the addiction to online gaming.

Hypothesis 2 demonstrated the positive effect that competitiveness has on devotion to esports. Besides the empirical validation of devotion as an antecedent variable, advancing Pimentel and Reynolds' (2004) work, this finding also contributes to fulfill the need raised by Ortiz et al. (2015, p.25), who affirm that "the role of psychological and personality factors are still to be considered in future explorations of consumer devotion".

The relation between competitiveness and online gaming addiction is also deepened from the confirmation of hypothesis 3, which proposes that devotion to esports completely mediates the relationship between these two constructs.

Esports are inherently competitive (Seo, 2013), however, this element by itself does not sufficiently influence a pathological condition. The mechanism here proposed demonstrates a different relation between competitiveness and online games, since Hussain and Griffiths (2009) reported that MMORPG players' competitiveness positively influences addiction. As

demonstrated by the confirmation of hypothesis 3, in an esports context, it is only devotion that triggers competitiveness to positively influence an online gaming addiction.

This effect can be understood by analyzing the specificities of esports, particularly the need for high involvement in sustaining behavior for the full development of the player. Contrary to other kinds of games, esports are consumed from a larger context, linked not merely to the act of playing, but also of consuming content and getting involved in the community. To completely dominate the game and display extreme dedication, devotion-related activities are essential to the evolution and development of the player's full competitive potential.

In addition to advancing the understanding of the relationship between competitiveness and pathological consumption of online games, this hypothesis also advances devotion studies, being the first proposition of devotion as an underlying effect between different constructs. Future research should explore other relationships devotion can take part as a mediating variable.

The confirmation of hypothesis 4 also demonstrates the positive effect of role models on esports devotion. Esports experience is constituted by the relationship between professional players and fans (Marques & Veludo-de-Oliveira, 2017). This powerful link is represented in effects such as the mimicry that arises out of the relationship between role models and fans (Bush, Martin & Bush, 2004). The influence of elite athletes on traditional sports fans has been approached by previous studies (Dix, Phau & Pougnet, 2010) and the confirmation of this hypothesis reinforces this relationship in the esports context. This confirmation also expands upon the work by Ortiz et al. (2015) by empirically confirming a new antecedent variable for devotion, reinforcing the author's proposed model.

Still on role models, the confirmation of hypothesis 5 demonstrates the positive effective of role models on competitiveness. Previous studies confirm that consumers who idolize celebrities usually emulate their behaviors (Choi & Rifon, 2007) and go through attitude changes having their role model as reference (Dix, Phau & Pougnet, 2010). The confirmation of this relationship, beyond being aligned with Arai et al. (2013), who positioned competitiveness as an essential behavior element of pro players and part of the role model image of the athlete towards the community, also reinforces the theory on role models (Clark, Martin & Bush, 2001; Dix, Phau & Pougnet, 2010; Martin & Bush, 2000), since it provides evidence that fans emulate or imitate such competitive behavior.

Finally, hypotheses 6 and 7 deal with the guilt associated with both devotion and addictive behaviors. Hypothesis 6 confirms that online gaming addiction is positively associated with guilt. This finding reinforces previous literature (Chappel, Eatough, Davies & Griffiths, 2006; Danforth, 2007), but is here analyzed in the esports context.

As demonstrated by Ortiz et al. (2013), supporters of traditional sports teams do not experience guilt. Considering that they are part of a community with its own ethical and moral values, there are no feelings associated with the transgression of some of these values by simply participating in it. However, from the moment the supporter engages in abusive behavior that hurts what the family or society understand as healthy consumption, guilt appears, and devotion starts to positively influence guilt, through the underlying effect caused by online gaming addiction.

Thus, the confirmation of hypothesis 7, which demonstrates the total mediating effect of online gaming addiction in the positive relationship between devotion and guilt, expands on Ortiz et al.'s work (2013), which demonstrated that there is no relationship between devotion and guilt. Given the presence of abusive consumption, this until then non-existing relationship begins to gain significance.

The present work expands the knowledge constructed in previous works related not just to devotion but also to online gaming, directly contributing to the demand for new works to deepen the complex relationships established in the esports context (Seo, 2013). The model that explains the antecedents and consequents of the relationship between devotion and online gaming addiction was proposed and validated, thus expanding knowledge of the factors that may lead youths to the abusive consumption of a highly popular activity. Two underlying effects related to devotion were also presented, showing the specific mechanisms at play in the relationships built by devotion. Ortiz et al.'s work (2013) is expanded both with new devotion antecedents and consequents and with the deepening of the relationship between devotion and guilt, initially understood as non-existent. Lastly, all relationships were tested and validated in a context that had not been explored before neither by literature on addiction nor by literature on devotion, that is, the esports context.

Marketing managers and professionals could make use of the present work to better understand the relationship between esports fans' devotion and the increase in abusive consumption. Companies should pay attention to the pathological effects their products might bring to consumers, and the present work demonstrates, in a deeper way, the mechanisms at

play in the migration from healthy to abusive consumption. Public policies related to mental health in young people can also benefit from this research, as it demonstrates the importance of role models for fans. Actions involving professional players could be interesting to effectively reach the affected public.

Future research can analyze more deeply the relationship between role models and online gaming addiction, especially their potential to revert abusive consumption, seeking both preventive and intervention actions. The present work also tested a consequent of this relationship: guilt. Other emotions and behaviors that can arise from this relationship can be studied, such as parental control, pride, among others. Religious elements can also be better explored by future models to deepen the relationship between addiction and devotion. Collections, rituals, and worship are examples of sacredness elements that may influence abusive behavior. To conclude, the present study focused on young men. Studies that demonstrate women's participation in esports and how abuse processes take place in this context could also be proposed in the future.

## Thesis Final Remarks

The growth of esports resulted in the development of a huge force, that attracts an audience of more than 380 million enthusiasts around the world (Newzoo, 2018). Such esports fans are involved in an extraordinary way with content linked to the games in question, demonstrating more dedication and desire for engagement than in any other type of sport (Brown, Billings, Murphy & Puesan, 2018).

Although most of the behavior behind their huge dedication is understood as natural, some fans are experiencing trouble with abusive gaming consumption. And there is enough evidence to treat video game addiction as a serious problem worthy of study (Kuss & Griffiths, 2012), particularly due to its consequences on an affected player's daily life. Previous studies have shown that online gaming addiction can result in academic performance degradation, low self-esteem (Toker & Baturay, 2015), alienation from the real world, loss of a sense of time, mood swings (Chiu, Lee & Huang, 2004), and, in more serious cases it may even result in physiological problems, such as insomnia, epileptic seizures, and, in rare cases, sudden death (Hsu, Wen & Wu, 2009).

This conjunction of three studies aimed to further develop the understanding of the devotion and addiction phenomenon, contributing in a substantial way to support the development of news strategies to drive those young fans to a healthy relationship with gaming.

Study one focused on the prophet figure of FalleN, as he is viewed as true sacred figure, extrapolating the boundaries of a role model, as Bush, Martin e Bush (2004) observed in traditional sports. This study further expanded the understanding of how fans of brands, product or activities become devotees through sacralization processes, as predicted by Pichler and Hemetsberger (2007). Also, elements of sacred define by Belk et al (1991) were presented within the E-Sports context for the first time, expanding the domains which this type of relationship with brands and activities arise.

The literature regarding devotion also benefits from the insights of this work, as elements of the transition from fandom to devotion through sacralization processes previewed in the tropical model proposed by Pimentel and Reynold (2004), such as quintessence or pilgrimage, are reinforced field data observed in a new context – E-Sports. Beyond reinforcing the devotion literature through observation of elements of the sacred within devotees, we propose a new and

important factor that influence the transition from fandom to devotion – the construction of the prophet myth.

In study two, it was observed that a large part of the players' experience is anchored in the social relationships created within the game circle, and by the competitive mentality of the players. The informants reported a high perception of the state of flow (Nakamura & Csikszentmihalyi, 2002) during the online gaming experience. Fans also reported strong identification with professional players, who serve as role models for them (Bush, Martin & Bush, 2004).

Although the social relationships built within the game were considered a strong factor to drive player's behavior, a conflict between families and players was reported. Abusive behavior leads the family to create mechanisms to prevent players from dedicating themselves to the object of devotion. Players reported that despite the impediments, after a while the family ends up adapting to the reality of abusive consumption and stops trying to prevent it.

Finally, study 3 used the insights proposed within the context of studies 1 and 2 to construct a model of antecedents and consequents of the relationship between devotion and addiction to online gaming.

Study 3 expands the knowledge constructed in previous works related not just to devotion but also to online gaming, directly contributing to the demand for new works to deepen the complex relationships established in the esports context (Seo, 2013). The model that explains the antecedents and consequents of the relationship between devotion and online gaming addiction was proposed and validated, thus expanding knowledge of the factors that may lead youths to the abusive consumption of a highly popular activity.

Two underlying effects related to devotion were also presented, showing the specific mechanisms at play in the relationships built by devotion. Oritz et al.'s work (2013) is expanded both with new devotion antecedents and consequents and with the deepening of the relationship between devotion and guilt, initially understood as non-existent. Lastly, all relationships were tested and validated in a context that had not been explored before neither by literature on addiction nor by literature on devotion, that is, the esports context.

We hope that this thesis not only contributes to further expand the theoretical framework related to addiction and devotion, but also serves as a basis for the proposition of future instruments to help esports fans to better relate to their online gaming routine. Business

practices and public policies should consider the development of new practices based on the insights provided by this research, helping with the prevention of young adults' mental health issues related to abusive gaming.

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## Appendix

<b>Concept</b>	<b>Scale adapted from</b>
Competitiveness	Harris & Houston, 2010
Role Model	Bush, Martin & Bush, 2004
Devotion	Ortiz, Reynolds & Franke, 2013
Online Gaming Addiction	Xu, Turel & Yuan, 2012
Guilt	Aquino e Medeiros, 2009

### Scales

#### Competitiveness (Harris, Houston, 2010)

- COMP1. I like competition.
- \*COMP2. I am a competitive individual.
- \*COMP3. I enjoy competing against an opponent.
- COMP4. I don't like competing against other people.
- \*COMP5. I get satisfaction from competing with others.
- COMP6. I find competitive situations unpleasant.
- COMP7. I dread competing against other people.
- COMP8. I try to avoid competing with others.
- COMP9. I often try to out perform others.

#### Role Model (Bush, Martin & Bush, 2004)

- My favorite e-sports athlete . . .
- \*RMOD1. Provides a good model for me to follow.
- \*RMOD2. Leads by example.
- \*RMOD3. Sets a positive example for others to follow.
- \*RMOD4. Exhibits the kind of work ethic and behavior that I try to imitate.
- \*RMOD5. Acts as a role model for me.



#### Devotion to esport (Ortiz, Reynolds & Franke, 2013)

- \*DEVO1 - I am really passionate about Counter Strike.
- \*DEVO2 - I am a committed fan of Counter Strike.
- \*DEVO3 - Being a fan of Counter Strike is important in my life.
- \*DEVO4 - I am extremely attached to Counter Strike.
- \*DEVO5 - I am very devoted to Counter Strike.
- \*DEVO6 - I am extremely dedicated to Counter Strike.
- DEVO7 - Other people think of me as a Counter Strike big fan.
- \*DEVO8 - I identify with Counter Strike very much.
- \*DEVO9 - Counter Strike is a part of me.

#### Online Gaming Addiction (Xu, Turel & Yuan, 2012)

- \*ADDI1. My social life has sometimes suffered because of my online game playing
- \*ADDI2. Playing online games has sometimes interfered with my work or study
- ADDI3. When I am not playing online games I often feel restless
- ADDI4. I have made unsuccessful attempts to reduce the time I spend playing online games
- ADDI5. Arguments have sometimes arisen at home because of the time I spend on online games
- \*ADDI6. I often fail to get enough sleep because of playing online games
- \*ADDI7. I often miss meals because of playing online games

#### Guilt (Aquino e Medeiros, 2009)

- \*GLTY1 - Sinto-me culpado por não administrar melhor meu tempo
- \*GLTY2 - Sinto culpa por não ter força de vontade para realizar meus propósitos
- \*GLTY3 - Geralmente me sinto culpado por não ter tempo para as pessoas que eu amo
- \*GLTY4 - Sinto culpa por ter deixado de fazer algo

\* Indicator kept in the proposed model