Universidade do Minho
Instituto de Ciências Sociais

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eSports: The New Age of Dietary Supplements

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eSports: A Nova Era dos Suplementos Alimentares

Dissertação de Mestrado
Mestrado em Media Interativos

Trabalho desenvolvido sob orientação da
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Abstract

eSports – the competitive form of video gaming – is a growing industry with millions of active players and viewers worldwide. Seen by many as a digital sport, rather than ordinary entertainment, this study explores the definition of eSports and its resemblances with traditional sports. It proposes the possibility of targeting, communicating, market, and selling dietary supplements to digital athletes. The study findings indicate that gamers have existing needs that can be fulfilled with the consumption of dietary supplements. The potential market size combined with the identified needs and the positive attitudes towards supplementation show evidence of a significant market gap and opportunity to be explored by nutrition brands.

This research then concludes that organizations and brands in the supplementation industry should develop and market supplements aiming to address gamers' needs by targeting the right gaming audience via appropriate eSports channels using specific marketing strategies and tactics.

Keywords: *eSports, professional gaming, eSports marketing, dietary supplements, performance enhancing*.

Resumo

eSports – a forma competitiva de utilizar videojogos – é uma indústria em forte crescimento que conta com milhões de jogadores e espectadores ativos em todo o mundo. Vistos por muitos como um desporto digital, este trabalho explora a definição de eSports e as suas semelhanças com desportos tradicionais. Propõe a possibilidade de utilizar este canal para comunicar e vender suplementos alimentares a atletas digitais. Os resultados obtidos indicam que os atletas digitais têm carências que podem ser supridas pelo uso de suplementos alimentares. O potencial tamanho do mercado combinado com as necessidades identificadas e as atitudes positivas para com a suplementação indicam que deverá existir uma expressiva oportunidade para ser explorada por marcas de nutrição.

Este estudo conclui que organizações e marcas na indústria da suplementação devem desenvolver e comunicar suplementos com o objetivo de suprir as necessidades dos jogadores através de uma correta segmentação e comunicar via canais apropriados dentro dos eSports, utilizando estratégias e táticas de marketing específicas.

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List of abbreviations and acronyms

CG – Chorionic Gonadotrophin

CS:GO – Counter Strike: Global Offensive

DOTA 2 – Defense of the Ancients 2, videogame

DSHEA – Dietary Supplement Health and Educational Act

ESA – Entertainment Software Association

ESL Gaming – Electronic Sports League, eSports organization operated by Turtle Entertainment

eSports – Electronic Sports

FDA – U.S. Food and Drug Administration

FPS – First-Person Shooter

IeSF – International eSports Federation

LAN – Local Area Networks

LH – Luteinizing Hormone

MMORPG – Massive Multiplayer Online Role Playing Game

MOBA – Multiplayer online battle arena

RTS – Real-Time Strategy

SERMs – Selective estrogen receptor modulators

WADA – World Anti-Doping Agency

WCG – World Cyber Games, international eSports event, held by International Cyber Marketing and Samsung

I got kicked out of my house because of my gaming career. Deep down inside I know this career is gonna work out for me in the end.

- Clinton "Fear" Loomis (#4 world eSports athlete by income)

1. Introduction

1.1 Research purpose

This master's thesis is an empirical research developed as part of the Interactive Media Master's degree. It explores the booming industry of eSports as a potential channel for dietary supplements. The personal interest of the researchers in competitive gaming and in the increasing usage of dietary supplements by athletes and the masses triggered the question as to why dietary supplements are currently not targeted and branded towards eSports athletes and eSports enthusiasts. This question led to the investigation underpinning this thesis.

It is estimated that the nutrition and supplementation industry is worth approximately $183 billion globally (Markets and Markets, 2015). Yet, the authors could not identify a brand or enterprise that targets its products specifically to gamers. In this project we aim to learn whether eSports are an interesting market for dietary supplements and establish how companies in the nutrition and supplementation industry can benefit from paying due attention to the opportunity of "connecting to the hyper-connected" (Keller, 2015), a group that is difficult to market to through other traditional channels.

To reach this objective, we interpreted previously published materials on eSports and dietary supplementation, studied the evolution of digital sports and inferred the expected benefits from the consumption of supplements by digital gamers. In order to determine whether eSports are an interesting opportunity for the nutrition and supplementation industry, we carried out qualitative and quantitative research using primary data collected through exploratory, structured interviews and an online questionnaire.

This study is particularly relevant to the academic and social community as it explores a relatively recent and fast-growing phenomenon that has not yet received full academic and corporate attention. It is interesting to understand why dietary supplements have not yet been marketed to

an audience as broad and focused as gamers. Furthermore, the rise of eSports is a phenomenon happening now, being utterly relevant to study it as it progresses rapidly.

With the results obtained, we expect to be able to specify gamers' needs that can be fulfilled through the consumption of these products as well as how brands should position themselves and communicate their products to appeal to digital athletes.

1.2 Research background

The growing interest around dietary supplements has given birth to a growing number of players in the industry, with multiple propositions for many different audiences. Nevertheless, dietary supplements are nothing new. Since the origin of civilized men, 6.000-4.000 BC, dietary supplements have been used to cure diseases or improve bodily functions (Kimpel, 2000). Scientific research and the progress of technology enabled the development of supplements aimed towards a much broader use than those seen throughout history. Today these supplements come in a variety of formats, with different consumption methods and tailored to specific needs meant to be used by different audiences.

While market segments such as the elderly, pregnant women or sportspeople are already covered by specific offers from numerous companies, the very specific audience of the digital gamers is not sufficiently targeted by dietary supplements producers. An exploration of any search engine returns not more than a few brands targeted to this group (e.g.: VyperDrive, Gamer Vitamins, Level Up Supplements). In traditional sports, athletes and sportspeople alike rely on dietary supplements to improve performances in their respective activities (Williams, 2004). We believe gamers, similarly to any traditional athlete, can benefit from the consumption of certain supplements to improve performance and give better response to the challenging and competitive environment of professional and semi-professional eSports scene. In Chapter 4, we aim to confirm these hypothesis by exploring the results of the primary research study conducted.

The term *gamer* (or *digital gamer*) refers to players who, competitively or for leisure, play electronic games (Merriam-Webster, n.d.). Among these, there are the ones who relish competitive gaming (Merriam-Webster, n.d.), or eSports, videogame competitions that involve a large number of stakeholders: players, teams, organizers, sponsors, media, etc.

Video games are no longer pure entertainment artifacts. Gone are the days when only companies directly related to the production and distribution of games enjoyed revenue from them. Today, there is an ecosystem of brands gravitating around videogames and eSports. Non-endemic businesses as diverse as energy drinks, consumer electronics, financial services, automotive or TV networks have already understood the potential of this channel. Still, the nutrition and supplementation industry has not yet acknowledged this reality. While traditional athletes are constantly bombarded by thousands of different supplements promising an endless set of benefits, there is a clear lack of proposals offering value to the millions of digital gamers around the world**.**

As we aim to study the use, influence and marketability of dietary supplements in competitive gaming, it is necessary to understand 1) what eSports are and which stakeholders are involved, 2) what a dietary supplement is and whether the gaming community would be interested in supplements specifically targeted at improving their performance and 3) which characteristics a brand and product should have to meet gamers' needs and triumph in this market.

In the following chapters we explore and develop each of these dimensions.

1.3 Research questions

Considering all the aforementioned aspects, the main research question this research aims to answer is:

Are eSports an attractive opportunity for companies operating in nutrition and supplementation industry and, if so, how should they market their products?

To answer this question, this research aims to address the following sub-questions:

1. What are the market characteristics?
2. Which marketing strategies and channels should be used by the brands that decide to enter this market?
3. Which existing or latent needs among gamers can be fulfilled by the consumption of dietary supplements?
4. Which performance, consumption method and organoleptic characteristics should the supplements possess to increase their attractiveness for gamers?

1.4 Scope and limitations

More than a theoretical research, this dissertation aims to be a practical guide to nutrition brands aiming to enter the competitive gaming industry. Although there are plenty of studies on traditional sports (Burnett, Menon & Smart, 1993; Witkemper, Lim & Waldburger, 2012; Sardo Pereira, 2013), the academic research around eSports is still very limited, as these are still a reasonably recent phenomena. At the time of this investigation, no academic research was found connecting the areas of electronic sports and dietary supplementation. For this reason, this research is heavily influenced by experiential knowledge of eSports specialists, pragmatic evidence on videogames and digital competitions and the perceived strong association between traditional and electronic sports.

1.5 Development plan

This document trails the following plan:

Chapter 2: A review of prior research and published materials on eSports and dietary supplements, including the formulation of research hypotheses based on the literature and the researchers' theories on the marketability of dietary supplements to digital gamers.

Chapter 3: The research design and methodology, including the portrayal of the primary research tools and samples.

Chapter 4: The analysis of the data collected through primary research and its results.

Chapter 5: The discussion of the results and conclusions driven by the outcomes of the investigation. Research implications, limitations and suggestions for future academic work are also included in this chapter.

2. Literature review

2.1. Overview

In this chapter we introduce and define the topics of the study while reviewing the existent academic and non-academic literature on the subjects.

First, we explore the term eSports confining it in time and space according to the different approaches by diverse authors and providing an overview of its evolution. We characterize the sport, providing insightful facts and figures concerning its relevance in today's society and for today's marketers.

Subsequently, dietary supplements are introduced. We give a brief historical synopsis on their development and use. We portray this multimillion dollar industry and explore dietary supplements use amid sports enthusiasts.

Finally, the authors' preliminary hypotheses on the use of dietary supplements among eSports enthusiasts are formulated, establishing relevant associations between traditional and electronic sports. These hypotheses are summarized in Chapter 2.4. and tested in Chapter 3 through qualitative and quantitative research. The testing results are presented in Chapter 4.

2.2. eSports

> Video games are now an important and well-established global leisure industry that has a significant relationship with sports (Crawford & Gosling, 2009, p. 62)

2.2.1. Defining eSports

Generally used to describe videogame competitions, the term eSports is the contraction of *electronic sports* and was first used in the late 1990's (Gestalt, 1999). Although academic literature is still relatively scarce on the topic, some authors have already addressed it from different perspectives (e.g. Reeves, Brown, & Laurier, 2009; Lee & Schoenstedt, 2011; Blum and Fisher, 2014; Seo & Jung, 2014), with special emphasis on the contextualization and evolution of the subject (Coates & Parshakov, 2016). Although a formal, widely accepted definition of eSports cannot yet be found, eSports (or e-sports) refer to professional or amateur digital competitions which feature players (athletes) usually associated to sponsored teams (Hamari & Sjöblom, 2015) and large enthusiastic crowds. eSports are distinct from the traditional videogame consumption as

the focus and interest shifts from storytelling (Buchanan-Oliver & Seo, 2012) and leisure (Burk, 2013) to an "organized and competitive approach" (Seo & Jung, 2014) with athletes trying to improve their skills, prove superiority to competition (Wagner, 2007) and financially sustaining themselves in doing so (Burk, 2013). FPSs (first-person shooters), sports games, RTS (real-time strategy) games, MMORPGs (massive multi-player online role playing games) and MOBAs (multiplayer online battle arenas) are amongst the most well-established digital sports (Szablewicz, 2015).

Blum and Fisher (2014) define eSports as a reality in exponential growth while Wagner (2006), based on Tiedemann's (2004) definition of sports, describes eSports as "an area of sport activities in which people develop and train mental or physical abilities in the use of information and communication technologies" (Wagner, 2006). Witkowski (2012) criticized Wagner's work, claiming that despite representing a "valuable first step into the critical consideration of eSports", misses the point as digital technologies are used in the majority of traditional sports. In its definition, TechTerms.com (2012) emphasizes the fact that eSports competitions are frequently played before physical audiences and broadcasted through the internet. We would rather use as a reference a broader perspective, defining eSports as any videogame competition where teams, or individual players alike, compete in real-time, following a set of rules and sharing a physical location or a digital connection (Figures 1 to 4).

Figure 1: *CS:GO, an example of FPS.*
Source: www.airbornegamer.com

Figure 2: *FIFA 2017, an example of sports game.*
Source: unrealitymag.com

Figure 3: *Starcraft II, an example of RTS.*
Source: news.softpedia.com

Figure 4: *DOTA 2, an example of MOBA.*
Source: mmos.com

2.2.2. eSports market

Although there is still a minor conflict in considering eSports as an actual sport (Hamari & Sjöblom, 2015) with some public figures – such as John Skipper (ESPN's president) – considering eSports as a "competition" such as chess or checkers and not a real sport (Tassi, 2014, para. 2), the content and media production created around them (e.g. live broadcasts, live commentators, flash-interviews or match highlights) (Taylor, 2016) as well as bewildering figures associated with eSports propel them as a global unprecedented phenomenon. Drachen and collaborators (2014), mentioning SuperData Research findings, suggest that in the USA alone over 31,4 million people were involved in competitive gaming in 2013. Globally, this value scaled to over 71 million people. Using time spent in gaming as a unit to measure the impact of this phenomenon, Drachen et al. (2014), confirmed by Orland (2014), indicate that every day 1.140 years of DOTA 2 are played. The 2013 World Cyber Games (WCG) hosted 400 gamers, 400 journalists and an astonishing audience of 155.000 people (Seo & Jung, 2014).

The e-commerce giant Amazon.com purchased the live videogame streaming platform Twitch.tv for $970 million in August 2014 (Conditt, 2015), which confirms the worldwide interest of large companies in eSports.

More recently, the 2017 edition of the Intel Extreme Masters in Katowice, broke all records and became the largest eSports event in history. According to the eSports Marketing Blog (2017), approximately 173.000 enthusiasts were present in a tournament that gathered the most notorious teams and athletes in CS:GO, League of Legends and StarCraft II. Online, over 46 million fans followed the event in live streams while 70 broadcasters created and distributed content for digital and traditional channels. Social media also boomed during and after the event with 55 million fans reached through social channels, 255 million impressions and 100 tweets per minute with the event hashtag #IEM.

eSports competitions award tens of millions of dollars in prize pools every year. The International 4, dedicated to DOTA 2, presented a prize pool of over $10 million (Mahardy, 2014), being the third biggest event in the history of videogames measured by prize pool value, only surpassed by The International 5 and 6, which awarded almost $18,5 million and $21 million respectively (E-Sports Earnings, 2017). The LoL 2016 World Championship figures as the biggest event not dedicated to Valve's title, having awarded over 5 million dollars in prizes.

eSports global revenues reached $612 million in 2015 while engaging an audience of 134 million people. The figures are expected to grow at 30% annual rate for the next five years (Conditt, 2015). According to Peter Warman (2017), the CEO of the market research company specialized in eSports videogames Newzoo, it is expected that eSports revenues reach $696 million and an audience of 385 million in 2017, boosting to $1,5 billion and 589 million people by 2020.

Figure 5: *The eSports Economy. Source: Newzoo (2015, p. 6)*

In terms of audience and involvement numbers eSports can nowadays be compared to some of the most well-established traditional sports. According to Newzoo (2015, p. 7), 1,6 billion people have an active role in at least one sport, while 1,7 billion people are playing videogames. Notwithstanding that eSports are now comparable to traditional sports such as ice hockey, Newzoo believes that in 2017 they will be as large as American football, the 7th most watched sport according to biggestglobalsports.com. Similarly to most traditional sports, an entire global industry gravitates around eSports (Figure 5), including not only teams, amateur and professional players, but also brands, consumers, sponsors, publishers, competition organizers and media (Newzoo, 2015, p. 5). Andrew Paradise, an eSports investor, stated his belief that "eSports are well on their way not just to legitimacy, but to true sports supremacy." (Conditt, 2015)

Contrary to traditional sports which highly rely on extensive traditional media coverage (TV, radio, print media, etc.), eSports are fundamentally broadcasted via the internet. Ströh (2017) citing Winnan (2016) states that eSports are "the first sport segment that gained commercial success without mainstream television", while fans rely on eSports online streaming, specialized websites or (the more recently created) dedicated subsections of mainstream portals, such as ESPN or Yahoo!.

2.2.3. Evolution of eSports

In order to achieve such magnitude, eSports evolved at a slow pace alongside the development of technological possibilities and the growth of the videogames industry. Dymek (2006, p.4) believes that an "esoteric academic hobby" turned into a $20 billion industry (Blum & Fisher, 2014), where even fully dedicated law firms, such as ESG Law by Bryce Blum, are being established.

Lee and Schoenstedt (2011) divide eSports evolution into two periods: arcade and internet eras. eSports origin is often attributed to the early 1980's with the emergence and growing practice of arcade games (Borowy & Jin, 2013; Burnham, 2001). By that time the first arcade tournaments appeared while local competitive communities were formed (Borowy & Jin, 2013). The first National Space Invaders Competition, which took place in 1980, held by Atari and dedicated to the videogame Space Invaders is, according to Borowy and Jin (2013), the first eSports tournament ever organized. In compliance with Lee and Schoenstedt (2011) two eras theory, Griffiths, Davies and Chappell (2003) defend that it was the development of local area networks (LAN) that shifted the paradigm behind eSports. Athletes were no longer facing machines but were in fact playing against other gamers in real time. Afterwards, with the internet revolution and the development of information technology (IT), eSports landscape was again radically transformed (Chaney, Lin, & Chaney, 2004). Cited by Valve (2014), Jon Robinson, an ESPN writer, mentioned regarding the emerging reality of competitive gaming: "You weren't just trying to be the best on your block. Now you are trying to be the best in the world." The faster and better internet connections and machines enabled gamers to face each other even if they were not sharing the same physical place, leading to the emergence of competitive and co-op gaming as we know today.

Similarly to traditional sports, digital competitions have multiple formats. Traditionally, we can identify both individual sports (such as snowboarding) and team set-ups (such as football). Each of these sports require a given set of characteristics and competences that vary greatly. The same principles apply to gaming, where being competitive at a shooting game as Counter Strike requires a skillset vastly different from the competencies needed to ace DOTA 2 or Hearthstone. Crawford and Gosling (2009, p. 51) help us emphasize the idea that even though "the relationship between video games and sports is quite complex (...) these two activities and industries are not as far removed as many would assume".

Reinforcing the idea of eSports as a new way of seeing sports, academies all over the world (University of California, Robbert Morris University, Garnes Vidaregaande Skule, Arlanda Gymnasiet School) are offering education programs, scholarships and other opportunities for students, making eSports an official variety of sport. In addition, administrations around the world, the United States government for instance, are starting to recognize eSports professional players as athletes granting them the corresponding visas to enter the country for competitions (Tassi, 2013). Furthermore, Wagner (2006) defended and Crawford & Gosling (2009) and Jenny, Manning, Keiper & Olrich (2016) reiterated that eSports share a vast array of principles and definitions with traditional sports, including the evident organized competitions between peers, in heavily regulated environments, which demand the development and training of (individual and team) physical and mental capabilities to achieve determined goals and results.

Kim and Ross (2006) and later Lee and Schoenstedt (2011) exposed the significance of competition in eSports. Their studies found that the competition effect had a huge impact on the amount of time dedicated by gamers. They also noted the relevance of peer pressure and skill building. These findings demonstrate the importance of being more capable, quicker and more skilled (as well as the winning over others effect) for gamers Lee and Schoenstedt (2011). There is even an ongoing discussion on whether or not eSports should be among the Olympic status competitions (Gaudiosi, 2012; Kates & Clapperton, 2015; Wolf, 2016).

2.2.4. Demographics of a gamer

In their research about the demographics of the gamer, Griffiths, Davies and Chappell (2003) studied two communities dedicated to the then popular videogame Everquest and identified that the majority of gamers around the turn of the century were between 19 and 29 years old (41%) in one of the communities and between 21 and 30 (46%) in the other. Both communities also indicated an identical split among genders: 84% and 86% of gamers were male. Erickson (2005) reinforced these findings by adding that the average age of the North American gamer was 30 years old. In 2008, Bardzell, Bardzell and Pace, citing the Entertainment Software Association (ESA), advocated the differentiation between casual and hardcore gamers, each group having its specific demographics. Contradicting the split seen before, Bardzell et al. (2008) state that the casual gamer – those who play for entertainment – tends to be a 25-34 year old female player who

dedicates less than ten hours a week to gaming, whereas the hardcore gamer – those who "play to win" – is a 18-49 year old male who dedicates a minimum of fifteen hours a week to videogames. Figure 6 below from the ESA is illustrative of the aforementioned split.

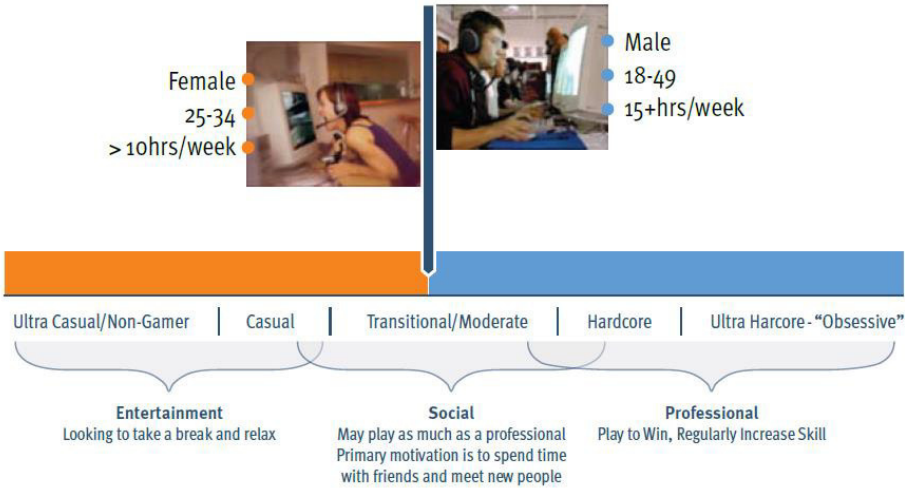


Figure 6: *Gamers' demography according to the ESA. Source: Bardzell, Bardzell, & Pace (2008), citing the ESA.*

More recently, the Entertainment Software Association (2016) published a report indicating that the average age of the American gamer was now 35 years old, an increase of 17% in a decade. Simultaneously, the ESA indicated that in 2016 29% of the gamers are between 18 and 35 years old, while the ratio between male and female gamers is now much more balanced at 59%-41% (Figure 7).

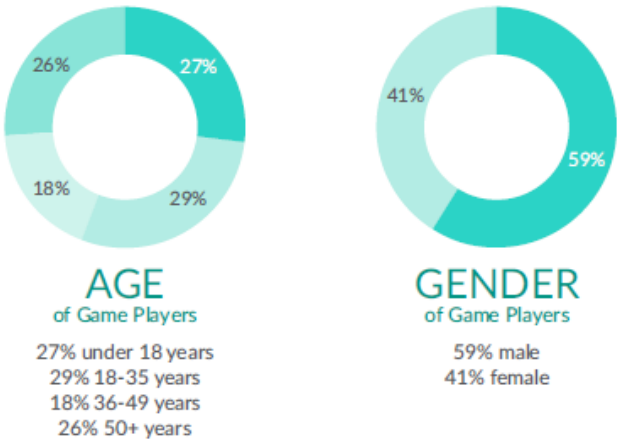


Figure 7: *American gamer average age and gender. Source: ESA (2016)*

In line with the report from the ESA, Newzoo (2016, p. 16) estimates that in 2015 out of 115 million global eSports enthusiasts, those between 21 and 35 years old represent 53% of the total fan base. Younger fans represent 27% and older aficionados the remaining 20% of the total pie (Figure 8). SuperData Research (2015, p. 6) indicates that 46% of the eSports viewers in the USA are between 18 and 24 years of age. The second largest group is between 25 and 34 years old and accounts for 23% of the North American eSports audience.

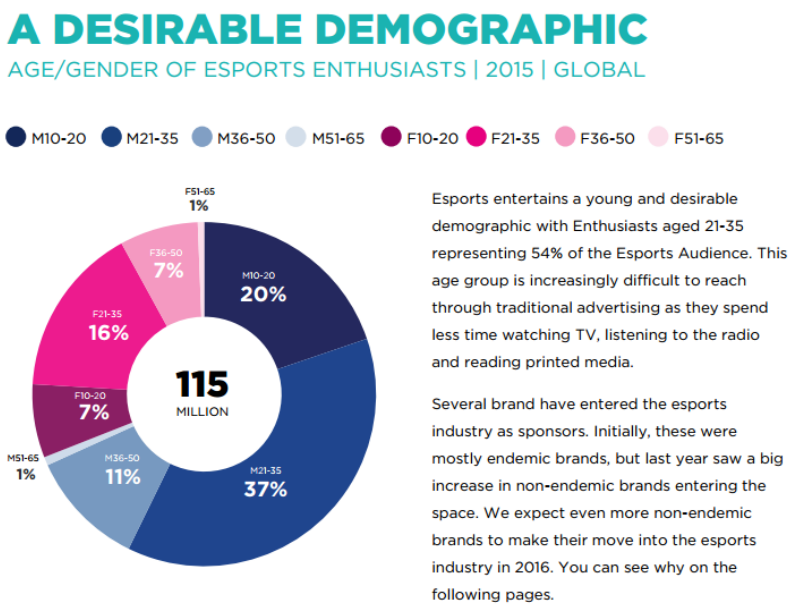


Figure 8: *Global gamers' age and gender split. Source: Newzoo (2016, p. 16)*

According to the ESA (Entertainment Software Association, 2016), the average gamer has been playing videogames for 13 years and 51% plays multiplayer at least once a week, spending 6.5 hours a week playing online. 50% of the "most frequent gamers", as described by the ESA, are familiar with eSports and use social media (45%), video clips (43%), TV (40%) and live streaming (38%) as the main ways of following their favorite eSports.

While endemic brands have an obvious motive to invest in eSports (gamers buy gaming gear), non-endemic brands must put in perspective and understand the potential attractiveness of eSports for their target groups (Ströh, 2017). According to the author, eSports fans are often technologically knowledgeable, having a strong influencing position in their friends and family technological purchases. Non-tech brands, such as dietary brands, can make use of the significant purchase

power of this target group (Newzoo, 2016), the emotional connection developed within the competition and for players and teams (Ströh, 2017), the increasing reach eSports have through mass media (Ströh, 2017) and most importantly the socio-demographic characteristics of the typical eSports fan, as described earlier in this chapter. The typical gamer lies within the generations Y and Z, or millennials and plurals, groups of people which are seldom found in traditional media, such as TV or printed newspapers (Newzoo, 2016; McGovern, 2016; Knight, 2016), as demonstrated in figure 9.

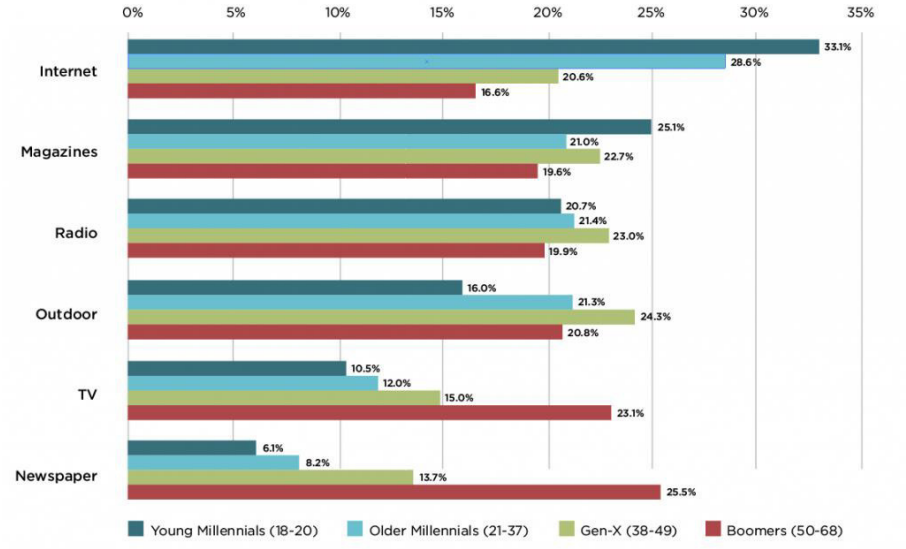


Figure 9: *Usage of media channels by generation. Source: McGovern (2016)*

2.2.5. The challenges of marketing to Gen-Y and Gen-Z

The millennials (generation Y) are the first internet generation, a group of connected and open-minded people born in the 1980's and 1990's who were raised within incredible advancements of personal technology and gadgets (Gibson & Sodeman, 2014; Van Den Bergh, 2013). The plurals (generation Z) are the "new kids on the block", born after 1996 and raised with computers and the internet, with continuous need for customization and connectivity (Van Den Bergh & Behrer, 2013).

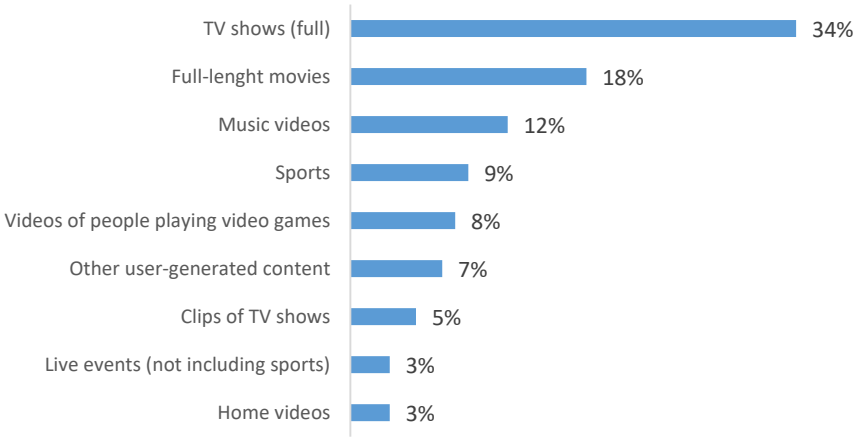
Van Den Bergh and Behrer (2013) identified the key success factors brands must possess to be cool and prosper when targeting generation Y. The authors questioned over 5.000 European men and women about their favorite brands and managed to isolate the CRUSH success factors for these brands: Coolness, Realness (or authenticity), Uniqueness, Self-identification and Happiness. The challenges of marketing to these generations are well-explored by literature (Williams & Page,

2011; Van Den Bergh, 2013; Ponchio, Strehlau, Costa, Calvente, & Alvares, 2013; Schlossberg, 2016). It is clear that traditional above-the-line advertising does not work well with these groups and highly targeted, tailored approaches through alternative channels are usually indispensable. Van Den Bergh (2013) suggests that these people are looking for genuine, innovative and relevant products which accomplish their promises, relying heavily on friends' feedback and online reviews. More than developing ad copy, brands must create a unique experience, engage in games and conversation, tell a story and have the courage to be unique (Williams & Page, 2011; Van Den Bergh, 2013; Schlossberg, 2016). Williams and Page (2011) in their paper *Marketing to Generations* also advocate the importance of brands using videogames as a channel to reach these generations, releasing strong messages around the ideals of greater good, teamwork and spirit. Retailers are changing the way they market and interact with plurals. This consumer group is not only looking for a good price but also for additional value from the price-tag: efficient online shopping, free delivery, extended services, prolonged warranty (Schlossberg, 2016). Finally, an interesting research in which Ponchio et al (2013) studied dietary supplements brand loyalty discovered that younger generations tend to be less loyal to brands than older generations. Yet, when the authors included *prestige* and *status* in their analysis, they discovered an inversion in the results, the youngest was also the most loyal group. Ponchio et al (2013) conclude that younger generations are comprised of new types of consumers, shaped by trends and new characteristics, representing new challenges for marketers.

As we have seen, the typical gamer falls within these two generations. If the individuals in this group as a whole already represent an imposing challenge to marketers, we can only assume that adding the gaming variable to the equation brings an even greater complexity of marketing to them. At the same time, this marketing challenge presents great opportunities of reaching and attracting hyper-connected consumers, who spend most of their free time in digital competitions with their peers.

2.2.6. eSports marketing potential

Despite being a recent phenomenon, eSports have unparalleled marketing potential (Seo, 2013). eSports tournaments sell out stadiums, offer millions of dollars in prize pools (Boone, 2013) and have massive international audiences both via television and internet (Newzoo, 2016). The industry is expected to be worth over $1 billion by the end of 2017, up from $748 million in 2015 and $892 million in 2016. Sponsorship and advertising represent 74,1% of these revenues (SuperData Research, 2015, p. 5). The remaining share is represented by prize pools ($78 million), betting and fantasy websites ($59 million), non-professional tournaments ($40 million), ticket sales ($34 million) and merchandise ($19 million) (SuperData Research, 2015, p. 5). Countries all over the globe are increasing the coverage of eSports tournaments both on regional and national TV networks (Dave, 2015; Donchenko, 2015). The online streaming platform Twitch (2014) surpassed the colossal 100 million unique visitors and 12 billion minutes of streaming marks on a monthly basis. This popularity led to wider multimedia coverage of eSports and snowballing consideration from prospective sponsors (Lee and Schoenstedt, 2011). All these media combined gathered a global audience of 188 million people (Donchenko, 2015), showing growth of over 168% since 2013 (Warr, 2014). A research conducted by eMarketer (2016), in October 2015, showed 8% of the total online video consumption among millennials was dedicated to "videos of people playing video games" (Figure 10). These numbers are expected to grow exponentially. SuperData Research (2015, p. 6) expects that by the end of 2019 more than 303 million people will assist to eSports competitions, growing 10,2% over 2018 and 26,8% over 2017.



Note: ages 13-34; weekly; includes DVDs, Netflix, TV, YouTube, etc.; numbers may not add up to 100% due to rounding. Source: TiVo, "Third Annual Millennial Video Entertainment Survey", Dec 8, 2015

Figure 10: *Primary type of video content viewed by US millennial internet users in % of respondents. Source: eMarketer.com (2016)*

Having an audience that is hardly found in traditional media and with an average income of $45.000 per annum with little to no expenses (SuperData Research, 2015, p. 6), it is not surprising that global tycoons such as Samsung, Coca-Cola and Red Bull already understood the relevance of digital sports in their marketing efforts (Chaney, Lin, & Chaney, 2004; Keller, 2015). While Coca-Cola is absorbed in its League of Legends adventure (e.g. Coca-Cola, 2014; Coca-Cola, 2015), Red Bull has gone beyond that by investing its money and time in "events, teams, broadcast production, training facilities, content creation, and more" (Keller, 2015, para. 7). Besides sponsoring athletes and events, Red Bull developed a high-tech laboratory in the USA to help pro gamers become even more competitive and effective (Gaudiosi, 2015).

In a recent interview, Matt Wolf – Coca-Cola's VP of Entertainment, Ventures and Strategic Alliances – referred to eSports as a "really, really big", powerful and valuable niche to brands who succeed in selecting and managing the right channels (alistdaily, 2017, min. 0:15). Even though the possibilities are vast (brand activation on tournament level, team level, player level, influencer level, etc.), Wolf stated that for Coca-Cola it made sense to be with the fans as part of tournaments.

> Coca-Cola is all about togetherness and all about celebration. And because it is about those things, we tend to be or want to be in the stands with the fans. We are not a performance-based brand. If we were we would want to be on the pitch or up on the stage and around the teams. (alistdaily, 2017, min. 12:06)

2.2.7. Endemic brands in eSports

The gaming and eSports industries are home to a vast array of brands, from producers, to publishers, to gear manufacturers. We are particularly interested in understanding the popularity of gear manufacturers as we believe their purpose is comparable to the approach we are studying in dietary supplements: improving gamers' performance. At the time of this research, in Amazon.co.uk alone, 51 brands are highlighted when filtering by "gaming Keyboard & Mouse Sets". Despite the large number of brands acting in the industry, there are a few that frequently stand out. Razer and SteelSeries are recurrently referred to as being among the top 10 most popular gaming gear brands in the world (DaBestShit, 2016; Fulton, 2017a; Fulton, 2017b). In a recent article, Newzoo (2017b) explores gaming brands' awareness in China, the major games market globally. Unsurprisingly, Razer and SteelSeries lead and close the Top 5 respectively. The German manufacturer Roccat is also included in the list. More thought-provoking is the analysis made by the Dutch agency Newzoo, showing how awareness for the same brands differs between "all active PC/Console gamers", "eSports enthusiasts" and "big budget gamers". As shown in figure 11, both Razer and SteelSeries see a dramatic increase in awareness between "occasional gamers" and "eSports enthusiasts", becoming stable between "eSports enthusiasts" and "big budget gamers" (Newzoo, 2017b, para. 3).

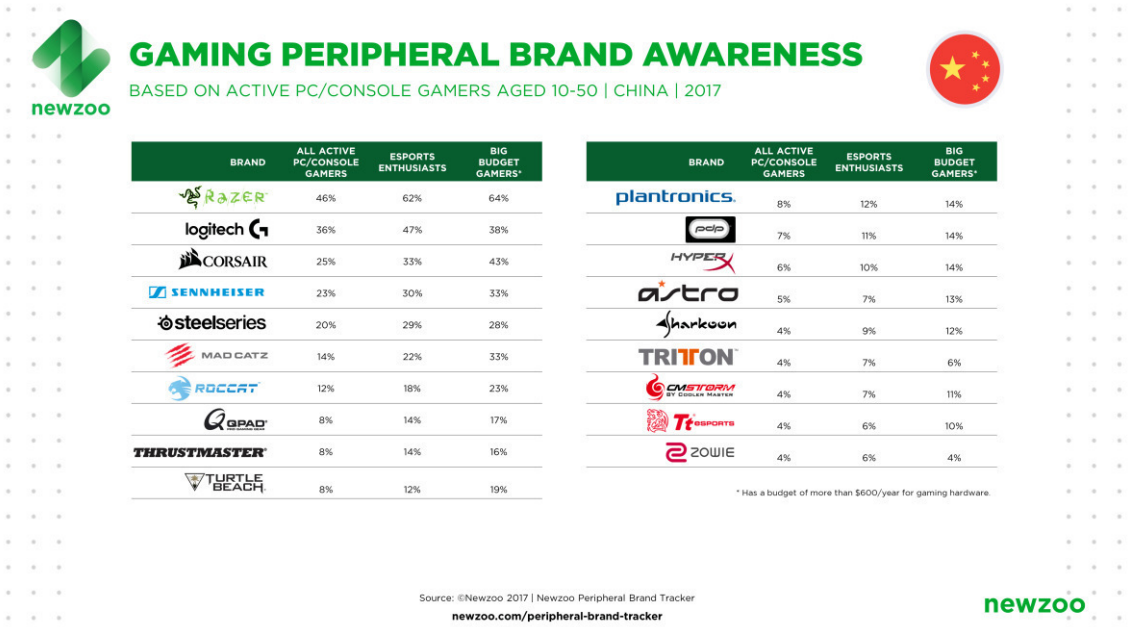


Figure 11: *Gaming peripheral brand awareness in China. Source: Newzoo (2017b)*

2.2.8. Non-endemic brands

Since the early engagement of a few non-endemic brands in the eSports scene – Coca-Cola or Red Bull for instance - many other corporations understood the importance of this channel to target the "hyper-connected". The German car maker Audi has announced a sponsorship to Astralis, a CS:GO team based in Denmark (Nordmark, 2017). "It's fantastic news for eSports and a validation of our world, that a non-endemic brand like Audi chooses to work with Astralis and Counter-Strike", team founder Frederik Byskov said in an interview to Dot ESports (Nordmark, 2017). The deal is believed to be valued at nearly €700.000, a comparable amount to what SK Gaming – an eSports organization of over 20 years old – attained in their recent deal with the financial services corporation Visa (Brautigam, 2017).

2.2.9. Brand preference in eSports

Brand preference is a concept well-established in marketing and advertising theories when a consumer would consistently choose a brand in the presence of competition but would not be bonded to it, in case it would not be available at the moment of purchase (BusinessDictionary.com, n.d.). Newzoo (2017a) studied the influence notorious eSports titles have in brand preference and discovered that different games, typically associated with different gaming communities are strongly associated with a different set of brands. While League of Legends viewers – a young audience that likes both to play and watch most of the Top 5 titles in Twitch by number of hours watched in May 2017– have a higher brand preference for Apple (41%) and Nike (89%) than the average gamer (33% and 77% respectively) Newzoo (2017a, p. 8-9); more CS:GO viewers use Instagram (81%) and Apple Music (40%) than any the average gamer (81% and 17% respectively) Newzoo (2017a, p. 10-11). Simultaneously, the research also found that 79% of DOTA 2 viewers are on Whatsapp and 73% have an HBO subscription versus 22% and 31% of the average gamer Newzoo (2017a, p. 12-13); and 47% of Hearthstone viewers have a higher preference for Samsung (47%) and Windows (91%) than the average gamer (34% and 79% respectively) Newzoo (2017a, p. 16-17). More interestingly, Newzoo also discovered that most eSports viewers only watch content of one franchise, with only 8% of the audience watching content of the top three titles (League of Legends, CS:GO and DOTA 2) Newzoo (2017a, p. 5).

These correlations are of extreme importance for marketers entering the eSports industry as they help setting the scene for which eSports titles their brands should focus their efforts on. Table 1 summarizes Newzoo's (2017a) findings.

eSports title	**Demographics**	**Associated brands**	**Overlap in eSports viewing**
League of Legends	26% of gamers between 10-20 years old; 32% of gamers are female	41% and 89% of LoL eSports viewers prefer Apple and Nike versus 35% and 77% of all gamers, respectively. 93% and 80% of LoL eSports viewers use Facebook and Netflix versus 88% and 65% of all gamers, respectively.	34% also watch Super Smash Bros content
CS:GO	50% of gamers between 21-35; 22% between 36-50	42% and 85% of CS:GO viewers prefer Apple and Coca-Cola versus 35% and 75% of all gamers, respectively. 81% and 40% of CS:GO viewers use Instagram and Apple Music versus 54% and 17% of all gamers, respectively.	35% also watch Overwatch content
DOTA 2	58% of gamers between 21-35	50% and 91% mainly use of have positive attitude about Samsung versus 34% and 77% of all gamers. 79% and 73% of DOTA 2 viewers use Whatsapp and HBO versus 22% and 31% of all gamers.	53% also watch CS:GO content
Overwatch	71% of gamers are male and 37% of these between 21-35	43% and 89% of Overwatch viewers have a preference for Samsung and Intel versus 34% and 66% of all gamers, respectively. 63% and 85% of Overwatch viewers use Snapchat and Netflix versus 36% and 65% of all gamers, respectively.	46% also watch League of Legends content.
Hearthstone	37% of gamers are female, 20% of which between 21-35. 31% are male between 21-35	47% and 91% of Hearthstone viewers prefer Samsung and Windows versus 34% and 79% of all gamers. 51% and 50% of Hearthstone viewers use Reddit and Spotify versus 12% and 20% of all gamers.	48% also watch StarCraft content

Table 1: *What eSports brand suits your best? Source: Newzoo (2017a)*

2.3. Dietary supplements

Since the origins of civilizations humans have been using plants and animal parts to produce medicine and other substances to cure diseases or improve body functions. The Sumerians are believed to have been the first society to use herbs as medicine over six thousand years ago. Clay tablets written by the people who inhabited the banks of the Tigris-Euphrates River confirm the use of different medicinal plants still well-known today. Amid the most recognizable are licorice, mustard plant and opium poppy. Other registries of herbal use over three thousand years ago can be found in Asia. The use of diverse herbs and plants led to the development of synthetic medicine. Aspirin, for instance, is produced from the Willow Bark tree (*salix sp.*) (Kimpel, 2000).

Eliason, Kruger, Mark and Rasmann (1997) define a dietary supplement as a product used to improve health and prevent illness prepared from vitamins, minerals, herbs, tissue extracts, proteins, amino acids and other substances. The U.S. Food and Drug Administration (FDA) describes them as products meant for oral assimilation, which consist of dietary ingredients that aim to add nutritional value to the regular diet. A dietary ingredient can be a vitamin, a mineral, a herb (or other botanical species), an amino acid, a concentrate, a metabolite, a constituent, an extract or another dietary constituent (FDA, 2015). Dietary supplements can be divided into two categories: dietetic and ergogenic aids. While the first group refers to products mainly dedicated to balance and improve unbalanced diets with shortages of specific nutrients (e.g. calcium or magnesium supplements), the latter refers in great part to ingredients used to increment the assimilation or production of nutrients beyond the basic physiological needs of an individual in order to improve a certain characteristic (e.g. protein or l-carnitine) (Ponchio, Strehlau, Costa, Calvente, & Alvares, 2013).

In the early stages of dietary supplements use as we know them today – before the 1990's – their production and use was strictly regulated by the FDA. A legal dietary supplement could only contain basic nutrients such as vitamins, proteins and minerals. In 1990 the class was enlarged to include "herbs or similar nutritional substances" but it was not until 1994 with the introduction of the Dietary Supplement Health and Educational Act, which defined and regulated dietary supplements, that they achieved the potential known today. The growing demand for supplements and the culture developed around them led to the annexation of "exotic edible compounds" (Maughan, King, &

Lea, 2004). Constituents as ginseng, hormones and steroids, fish oils or enzymes are now accepted as legitimate dietary ingredients (Kimpel, 2000).

Modern technology and techniques, as well as resourceful marketers, enabled the existence of dietary supplements in various shapes and forms for virtually any sort of health benefit (Noonan & Noonan, 2006). "Tablets, capsules, soft gels, gel caps, liquids or powders" are the accepted profiles for dietary supplements accepted by the FDA (FDA, 2015).

Valued at $37 billion in 2016 in the USA alone and expected to grow over $60 billion in 2021, the dietary supplements industry is one of the fastest growing business markets all over the world (Grand View Research, 2017; Lariviere, 2013). This growth is mainly attributed to the mainstream effect these products had in the beginning of the 21st Century (Lariviere, 2013) and is now mostly driven by the athletic nutrition category (Grand View Research, 2017). Brian Smith – Partner at Partnership Capital Growth and an industry expert – cited by Lariviere (2013, para. 2) said "ten years ago, it was just the muscleheads and the weekend warriors. Now, it's the full spectrum with men and especially women". Several studies and surveys conducted in Europe (e.g. Alliance, 2001; Beitz, Mensink, Rams, & Döring, 2004; Mensink et al., 2013; Rovira et al., 2013; Tetens et al., 2011) endorse the theory that consumption of supplements varies according to gender and geography. Women consume more supplements than men and more Danish (59%) and Germans (43%) use dietary supplements compared to, for instance, Irish (23%) and Spanish (9%).

In the USA, an estimate of 29.000 different supplements could be found in stores by the turn of the century (Palmer et al, 2003). It is safe to assume that this number has significantly grown over the last decade and a half.

While the consumption of dietary supplements is globally prevalent as a way of counterbalancing poor diets and stressful lifestyles (Maughan et al., 2004), it is amongst sports enthusiasts that these products achieved their apex of use and worship (Petróczi, Naughton, Mazanov, Holloway, & Bingham, 2007) and a global multi-million dollar industry was formed (Maughan et al., 2004).

2.3.1. Dietary supplements in sports

The first references to the usage of dietary supplements in sports date to around 500-400 BC when deer liver and lion heart were believed to offer benefits to bravery, speed and strength (Meltzer & Fuller, 2007). Research and development of dietary technology enabled the substitution of deer or lion organs for compounds such as carbohydrate powders, amino acids or l-carnitine (Meltzer & Fuller, 2007).

Specifically concerning sports activities, history is rich in famed reports of the usage of substances that were believed to improve several aspects of one's body, enhance performance and enable the achievement of outcomes that would not be possible without them (Mayer & Bullen, 1960; Williams, 1989).

Savulescu, Foddy and Clayton (2004) in the introduction to their *Why we should allow performance enhancing drugs in sports* paper wrote:

> In 490 BC, the Persian Army landed on the plain of Marathon, 25 miles from Athens. The Athenians sent a messenger named Feidipides to Sparta to ask for help. He ran the 150 miles in two days. The Athenians attacked and, although outnumbered five to one, were victorious. Feidipides was sent to run back to Athens to report victory. On arrival, he screamed "We won" and dropped dead from exhaustion. (Savulescu, Foddy, & Clayton, 2004, p. 1)

This historic reference highlights the importance of an appropriate nutrition in extreme athletic conditioning. In the same manner Feidipides may have resisted death, sportspeople largely benefit from the use of dietary supplements as part of their balanced diet (Scofield & Unruh 2006). Through historical and contemporary times, both elite athletes and "weekend warriors" battled to improve their performances in a wide variety of sports activities. The authors observe that the use of dietary supplements is "as ancient as sports themselves". (Applegate & Grivetti, 1997, p. 869).

The usage of dietary supplements is an extensive and customary phenomenon in sports (Maughan et al., 2004). It is estimated that its intake among athletes of both genders varies from 24% to 88%, with different authors studying different countries, sports practiced, and professionalization levels (e.g. Burns, Schiller, Merrick, & Wolf, 2004; Huang, Johnson, & Pipe, 2006; Krumbach, Ellis, & Driskell, 1999; Nieper, 2005; Pereira, Lajolo, & Hirschbruch, 2003; Ronsen, Sundgot-Borgen, & Maehlum, 1999; Slater, Tan, & Teh, 2003). In addition, research timing also impacts supplement

penetration, with older studies reporting lower consumption rates. The usage of dietary supplements is nonetheless fundamentally different from sport to sport, being mostly common among strength and power sports athletes (Maughan et al., 2004; Ronsen et al., 1999).

Although research studying the motivations of the usage of dietary supplements amid athletes is scarce (Petróczi et al, 2007), some authors reached consensual conclusions. The dietary supplements have been used by athletes and sports people for a long time to compensate inadequate diets, keep up with intense training, improve performance and compete with opponents (Maughan et al., 2004). Pereira, Lajolo and Hirschbruch (2003) discovered that the vast majority of supplement takers do not know or understand their purpose, with 46,7% of users stating that the usage was recommended by personal trainers or friends. In their research, Sobal and Marquart (1994) found that teenagers took supplements for their short-term health benefits, to prevent illness, improve immunity, amend incorrect diets and boost performance.

> Although wise food choices will not make a champion out of the athlete who does not have the talent or motivation to succeed, an inadequate diet can prevent the talented athlete from making it to the top. (Maughan et al., 2004, p. 95)

Savulescu, Foddy, & Clayton (2004) believe that the efficacy of supplements, the temptation of greater success and the colossal amount of money in prize pools and endorsements awarded to leading athletes are enticements large enough to seduce any athlete to submit himself to the promises and outcomes of dietary supplements and forbidden drugs. Dietary supplements can have a very significant impact on sportspeople especially when nutrient intake or food choices are restricted or unsatisfactory.

The dietary supplements are known to improve not only physical, but also the cognitive performance. A recent study (Franke et al., 2017) investigated the influence of cognitive enhancers (methylphenidate, modafinil, and caffeine) on chess players. By investigating 3.059 chess matches, the authors discovered that players who took a dose of such substances before a match would do 6% to 8% better than the control group. Moreover, they also found that the group who took cognitive enhancers would take longer periods to make a decision. Although this characteristic had implications on the time-management aspect of the game, it would also result in better moves, suggesting that these substances improve the players' ability to make better decisions by spending more time in doing more detailed judgments.

Multiple studies explored the impact of different components to memory improvement, cognition and energy levels (e.g. College of Sports Medicine, & American Dietetic Association, 2000; Whalley, Wahle, Starr, & Deary, 2004; Macpherson, Sali, & Pipingas, 2012; Stonehouse et al., 2013). Alike, professional athletes and most competitive gamers can benefit from the use of certain supplements. Benefits in concentration, memory, energy levels and alertness are just a few of the countless advantages gamers may experience using a few of the already existing products.

With competition and reward levels on ever-high standards, athletes seem to search for any possible vantage point over the competition (Maughan et al., 2004). Sports history is rich in scandals involving elite athletes and forbidden performance enhancers. Tyson Gay (track and field), Lance Armstrong (cycling) and Diego Maradona (football) are some of the most noticeable examples of sports idols that used banned substances to get ahead and claim titles and prizes (Kendy, 2014). The sophistication and accessibility of training programs required that, in order to beat the competition, athletes needed to focus not only on hard training but also on a congruently refined nutritional plan (Maughan et al., 2004).

2.3.2. Risks of dietary supplements in eSports

As in any other industry or line of business, there are risks associated with eSports that brands must consider before associating their names and image to the sport, a team, a player or an event. Ströh (2017) explores in some detail the most common risk factors for sponsors in the eSports scene. While some of these risks are widely applicable to any competitive sport, some refer to the very unique aspects of electronic sports. Table 2 summarizes the risk factors proposed by the author:

Risk Factor	***Context***	***Specific to eSports***
Manipulation of internet connection	*In eSports, a large number of competitions are held online. Interference with a player's internet connection can influence greatly the outcome of a match.*	*Yes*
Cheating	*The act of using pieces of software to change the way a game normally behaves. Cheating happens in the vast majority of cases online and different organizations have very sophisticated software to detect and prevent these occurrences.*	*Yes*
Doping	*Doping is the usage of prohibited substances to modify/enhance bodily functions and is not only an issue in traditional sports. There are already identified cases of doping in eSports and a few international organizations already perform regular doping controls in eSports athletes.*	*No*
Match fixing	*The act of deciding the outcome of a match before it happens, usually for financial gain of someone (e.g. online betting).*	*No*
Virtual violence	Popular media often categorizes videogames as a root cause for violence in young boys and girls.	*Yes*

Table 2: *Risks for brand name association with eSports. Source: Own representation based on Ströh (2017)*

Given the theme of our work we are particularly interested in the usage of forbidden substances among athletes. Dietary substances can be confused with doping agents and it is important that dietary brands are aware of this risk.

> Video games are a sport, its top players are athletes, and they play in professional leagues. What, those definitions don't work for you? How about if I told you that video games finally got the one thing (besides physical activity) separating it from every other sport: A drug scandal! (*Stockton, 2015, para. 1)*

The usage of ergogenic aids[1] in sports was banned for the first time in 1928 by the International Amateur Athletic Federation (Savulescu, Foddy, & Clayton, 2004). These substances are forbidden

[1] **Ergogenic aid:** Performance enhancing substance. E.g.: anfetamins, steroids, cafeine, carnitine, creatine, BCAAs.

as they represent a health threat or an unfair advantage to athletes (Maughan et al., 2004). In traditional sports, the World Anti-Doping Agency (WADA, 2015) prohibits the use of anabolic androgenic steroids, erythropoietin-receptor agonists, hypoxia-inducible factor, Chorionic Gonadotrophin (CG) and Luteinizing Hormone (LH) and their releasing factors, Corticotrophins and their releasing factors, growth hormones and their releasing factors, beta-2 agonists, aromatase inhibitors, Selective Estrogen Receptor Modulators (SERMs), other anti-estrogenic substances, agents modifying myostatin functions, metabolic modulators, diuretics, masking agents and other constituents with comparable properties.

In eSports, government bodies such as WADA or Germany's National Anti-Doping Agency already forecasted systematic anti-doping tests for professional gamers a few years ago (Stockton, 2015) while the International eSports Federation (IeSF) and ESL Gaming were the first eSports organizations to submit pro gamers to anti-doping controls (Stockton, 2015).

Notwithstanding WADA's prohibited list, nutrition brands interested in the eSports industry should not be discouraged by these regulations as an interminable list of other dietary supplements is permitted and regulated in official competitions. Yet, brands must ensure that their products comply with existing regulations.

2.4. Research Hypotheses

The strong resemblance between traditional and electronic sports described in chapter Defining eSports, combined with the widespread use of dietary supplementation in traditional sports described in the previous chapter, suggests that there is an opportunity to apply the principles of usage of dietary supplements in eSports. This statement is supported by Stockton (2015, para. 3), who indicated "if video games are a sport, then the mind is its muscle". Stockton believes that just like in traditional sports, gamers and eSports athletes are looking for opportunities to gain some advantage over the opponents. Dietary supplements that present such opportunities are likely to be successful in this market segment.

Franke et al. (2017) research is also particularly relevant to our investigation as it reinforces the (positive) impact of certain substances on the performance of non-physical or intellectual athletes – such as chess or eSports players.

Based on contextualization made in the previous chapters and the above considerations, we formulated the following hypothesis for further investigation: *There is a potential market for dietary supplements for gamers and eSports athletes, as they want to improve their performance.*

The next chapter will outline the methodology applied for testing the hypothesis.

3. Methodology

3.1. Overview

This chapter presents the research methodology of the exploratory study with gamers and eSports athletes. Literature review was conducted and complemented with the researchers' ideas, leading to open-ended, structured and exploratory interviews with voluntary participants, which served as a basis for the quantitative questionnaire applied through an online survey platform.

3.2. Research model

The study was conducted based on the following conceptual research model (Figure 12) and developed to answer the research questions and test the research hypothesis.

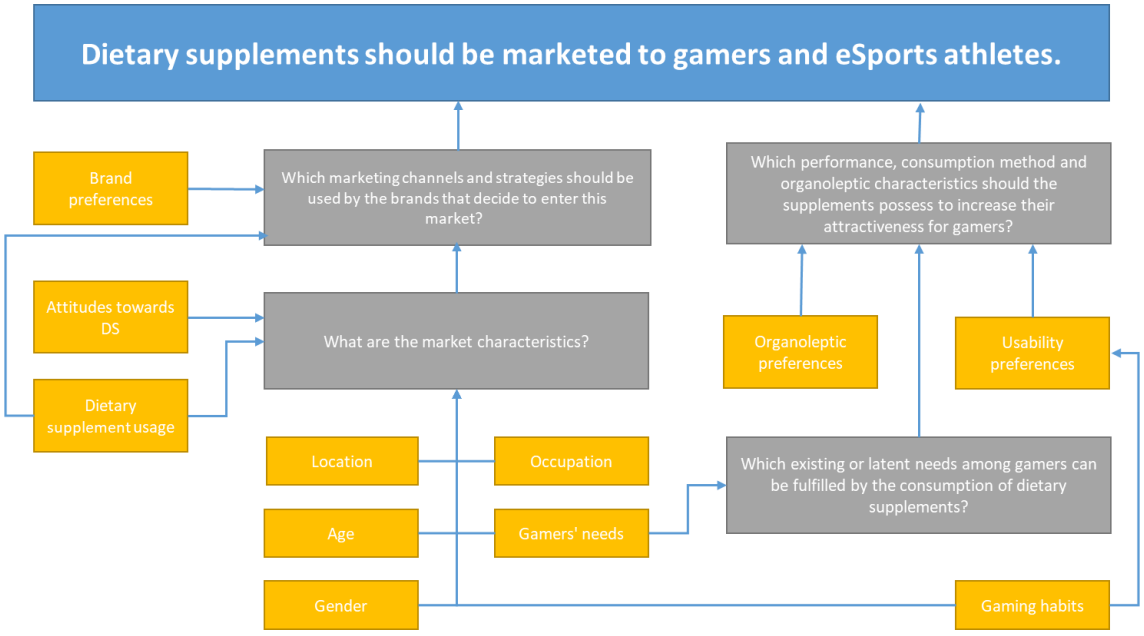


Figure 12: *Research model. Source: Own representation*

Each of the four sub-questions formulated is operated by a set of variables that are expected to help answer the main research question. The demographic variables combined with the gaming and supplementation habits and needs of gamers in combination with the attitudes towards dietary supplements and market figures obtained via secondary research are expected to help answer sub-question 1: What are the market characteristics. These, jointly with brand preferences and the marketing tactics that drive that preference will help us answer sub-question 2: Which marketing

strategies and channels should be used by the brands that decide to enter this market. By brand, we aim to refer to both endemic and non-endemic brands as well as videogame titles (which also function as channels).

Understanding the performance needs gamers' want to fulfill will (sub-question 3: Which existing or latent needs among gamers can be fulfilled by the consumption of dietary supplements?), in combination with their usability and organoleptic (flavor, aroma, etc.) preferences, are expected to help clarify sub-question 4: Which performance, consumption method and organoleptic characteristics should the supplements possess to increase their attractiveness for gamers.
An extended representation of this model is available in annex 7.1. It includes the measured properties, measurement process, measurement result and research questions, based on Burns and Bush's (2010) market research measurement process.

3.3. Method

This study was conducted relying on the triangulation of research methodologies illustrated in figure 13 (Cox & Hassard, 2005; Oliver-Hoyo & Allen, 2006; Duarte, 2009), to take advantage of the strengths of both qualitative and quantitative research and mitigate the drawbacks of each method (Johnson & Onwuegbuzie, 2004).

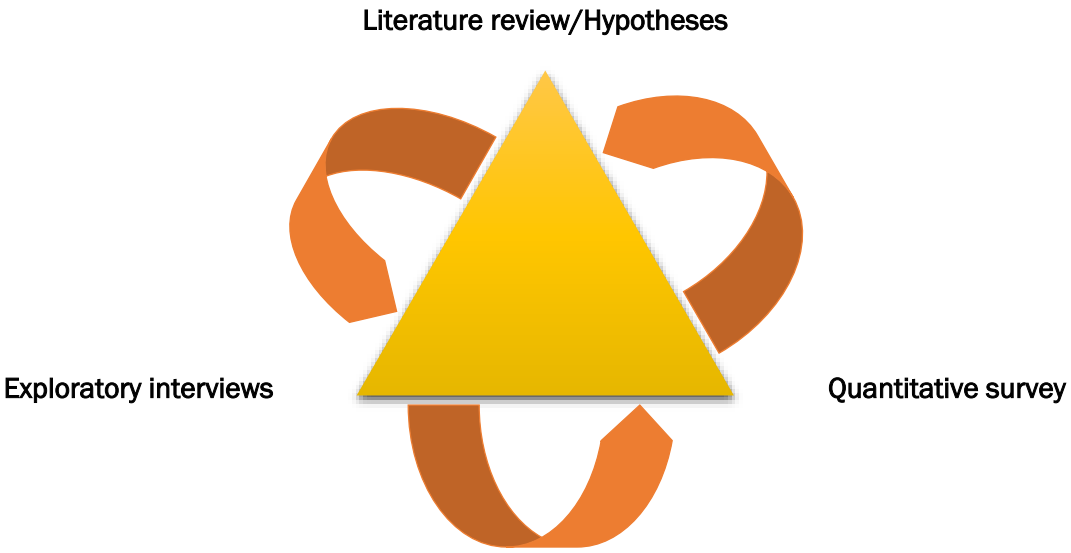


Figure 13: *Triangular design based on Cox & Hassard (2005), Oliver-Hoyo & Allen (2006) and Duarte (2009). Source: Own representation.*

First, we collected and interpreted previously published materials concerning eSports and dietary supplementation in order to accumulate exploratory knowledge and establish the current state of the art. Initially, numerous articles – scientifically oriented or empirically developed by eSports specialists and enthusiasts – that expose the current reality and evolution of the topics were reviewed. In a field of knowledge still scarcely explored by academic research, getting information from popular media was necessary. These articles were gathered using academic and social platforms through different keyword research and combinations. Some of the most relevant keywords used were: *eSports, professional gaming, eSports marketing, dietary supplements, performance enhancing*. The selected materials were then analyzed and their most relevant findings cited in the literature review section. A limited number of published academic material on the topics was available. Hence, we have significantly relied on empiric, non-academic work as a foundation for this study.

Given the scarcity of the academic knowledge on the topic and relying on Stern's (1980) premises around the grounded theory methodology, we focused on exploring our ideas on how dietary supplements are used and perceived with a limited sample of gamers. Standardized open-ended, structured interviews (Turner, 2010) were conducted with nine gamers with the findings leading and enabling the design of a quantitative questionnaire (Bryman, 1988). The fundamental goal of these interviews was to discover new perspectives and explore the views and beliefs of this group of the gaming community to further clarify the research hypotheses (Stern, 1980; Johnson & Onwuegbuzie, 2004). The decision of applying a structured, open-ended interview format resulted from the researchers' objective to provide gamers' with the possibility of sharing their opinions and experiences as they desired about the specific topics in the most comfortable, routine-like situation possible (Turner, 2010). We believe that allowing the participants to answer the questions in their comfort zone (behind their screens) and without any sort of timing or interpersonal constraint would give us the most accurate and authentic answers. Based on McNamara (2009) recommendations, the questions were formulated using open-ended, neutral phrasing ensuring participants had the opportunity to freely express their views and opinions without being skewed towards a specific outcome.

We then applied a close-ended, quantitative questionnaire aiming to gather a larger, global and more representative amount of data that would enable the testing of the research questions and the research hypothesis (Johnson & Onwuegbuzie, 2004).

3.4. Qualitative research

Nine gamers, between 18 and 28 years of age (M: 24,7; Mdn: 2,7) were invited to participate in a semi-structured, exploratory interview, conducted using Typeform - an online, conversational survey platform (Figure 14). The participants were residents of Portugal (7), Spain (1) and Sweden (1). All participants have a minimum of twelve years of formal education, four hold a master's degree, two the twelfth degree of the Portuguese education system, one a post-graduate degree, one a bachelor's degree and another participant four years of higher attendance (in the Swedish academic system). Only one of the nine participants is currently professionally inactive.

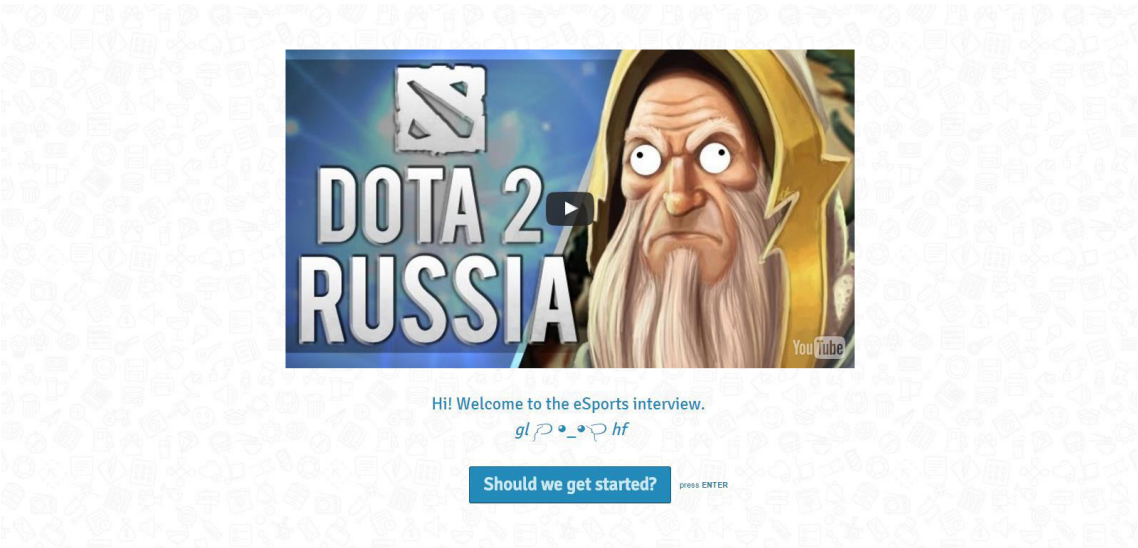


Figure 14: *Welcome screen for the online, exploratory interview with nine randomly selected gamers. Source: Own representation.*

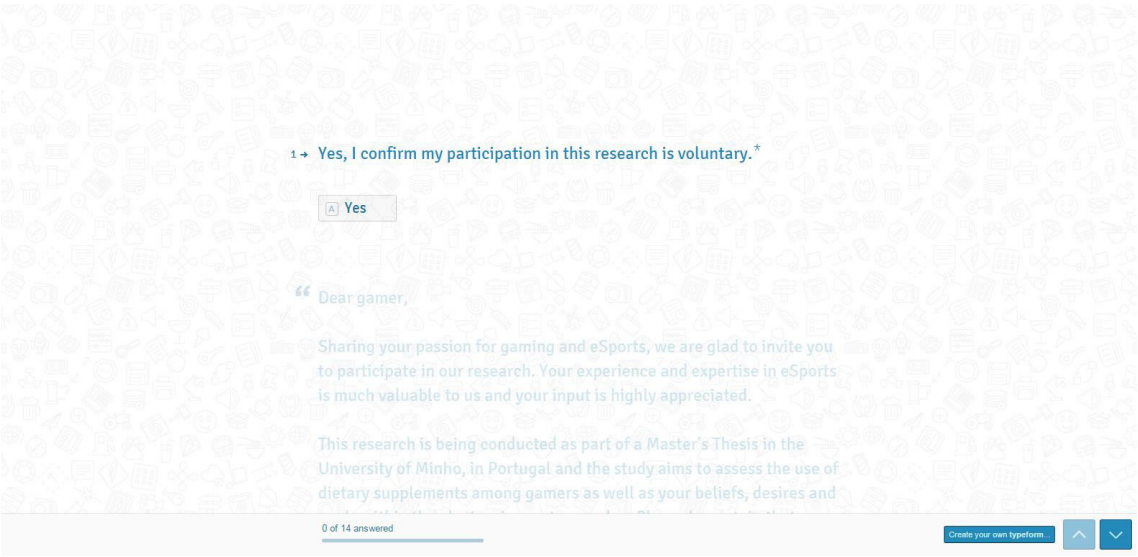


Figure 15: *Participants were requested to confirm that their participation was voluntary. Source: Own representation.*

Participants were selected through personal connections of the investigators, social media and the Reddit online community. As confirmed by figure 15, participations were voluntary. The gamers were approached both on Facebook groups and Reddit communities fully dedicated to gaming and eSports and invited to participate in the research. Those that accepted to voluntarily provide a glimpse into their experience, views and beliefs with regards to the gaming scene and the usage of dietary supplements were given a unique link to Typeform. Once on the tool, they were presented an interactive questionnaire aiming to better understand desires, interests, goals, beliefs and behaviors of these gamers. In the communication with the participants graphic imagery and informal language was used, resembling the way gamers communicate with each other in gaming context and aiming to stimulate their participation as a result of easier identification with the research topic. The interviews were conducted on January 10th and 11th of 2017 and had an average duration of 59 minutes.

As these inquiries were answered autonomously, the researchers had little control over the necessary time to answer the proposed questions. This can be interpreted as a limitation of the study, yet was a conscious decision not to disrupt the common routine of the gamers, allowing them to answer the questions where their views are most valuable and relevant to the study – behind their own screens.

As previously stated, the central aim of the exploratory interviews was to find new perspectives that were not considered by the researchers and explore the views and beliefs of this group of the gaming community about the three topics in study: eSports, dietary supplements and their correlation (Stern, 1980; Johnson & Onwuegbuzie, 2004). With this in mind, we have developed a script consisting of six open-ended questions in which we asked the participants to describe their experience with videogaming and eSports, their preferences towards endemic and non-endemic eSports brands, products and services, their experience with and beliefs about dietary supplements.

All nine interviews are analyzed and their results individually explored in the following chapter. Results and full transcript are included in section 8, Appendix.

3.5. Quantitative research

3.5.1. Questionnaire

An online questionnaire was the chosen technique to gather quantitative, scalable data amongst the gaming community, greatly due to its many advantages in terms of ease and flexibility of creation and distribution of the form as well as the speed offered in terms of data collection and analysis (Burns & Bush, 2010). Aiming to gather evidence to expose the community's experiences, interests, desires and preferences with regards to eSports and supplementation, the online survey was the baseline to answer the proposed research questions. The questionnaire was created using the Typeform platform and distributed through several online social media tools (Facebook, Facebook Groups, Facebook Messenger, LinkedIn, LinkedIn Groups) and Universidade do Minho mailing list. Voluntary participants could access the survey using the link: https://joserodrigues2.typeform.com/to/UIB16N. As suggested by Hill & Hill (1998) a pre-test with n = 3 participants was conducted to ensure the adequacy of the questionnaire and that no major issues were overseen by the authors.

Aiming to enhance the interest around the questionnaire and the response rate, the authors raffled a €50 Amazon.co.uk voucher between all participants who indicated their email address. Close attention was also given to the questionnaire's design, aesthetics and user interface to maximize the likelihood of the participants' cooperation (Hill & Hill, 1998).

In addition, we have partnered with XX NINF Lan Party for the distribution of the questionnaire among the event's participants. The NINF Lan Party is a gaming event organized by students of the Universidade da Beira Interior in Portugal. All two hundred attendees were invited to voluntarily participate in the research, through an email that included not only the poster below (Figure 16) but also an introductory text, explaining the purpose of the research and the importance of their participation. To incentivize and thank the respondents for their participation, a second Amazon gift card (€10) was drafted among the participants.

Figure 16: *XX NINF LAN PARTY poster dedicated to this research questionnaire. Source: Own representation.*

Furthermore, in an attempt to reach the Russian speaking eSports community, the original questionnaire was translated to Russian by a native speaker and distributed through social media and personal connections of the researchers. Notwithstanding the efforts, the outcomes achieved were not in line with our expectations and a very limited number of Russian speaking gamers opted to participate in the research.

Using Burns and Bush (2010) response format categorization, a set of categorical multiple-choice, metrical natural scale and metric synthetic scale were used. The questionnaire was built based on Hill & Hill (1998) and Aaker, Kumar & Day (2008) work. No open-ended questions were included to increase response standardization and simplify the response flow (Burns & Bush, 2010).

The purpose of the study, the aims of the questionnaire and the voluntary and confidential nature of the participation are explained in the survey's introduction. The Amazon voucher raffle is also

introduced alongside a clear set of rules, defining the participant's entitlement to be part of the lottery:

1. Questionnaire must be filled in fully;
2. Questionnaires randomly filled will be excluded.
3. Participants must indicate a valid email address. Email address will be used to communicate with the winner;
4. Draft takes place on July 1st 2017, using the website Random.org.

The above rules were designed to increase data quality by mitigating the existence of questionnaires randomly filled only to have the chance of winning the voucher.

The questionnaire was divided into three sections: 1) videogames and eSports; 2) dietary supplementation; and 3) socio-demographic characterization questions, as we further explain.

Section 1, Videogames and eSports. In the first section, we try to establish a profile of the gamer, including the gaming habits, routines, and preferences. This section contained seven questions, including a Likert scale question with twelve sub-questions.

Section 2, Dietary Supplementation. The second section is dedicated to the nutrition part of the study and aimed to assess the beliefs, attitudes and preferences regarding dietary supplementation among gamers. This section was contained six questions, including two Likert scale questions with eleven and eight sub-questions respectively.

Section 3, Socio-demographic characterization. The final segment of the questionnaire aimed to answer the research questions regarding the potential market for dietary supplements within this target group. This section contained six questions.

3.5.2. Sample

Using a convenience sampling method, data was collected from gamers and eSports enthusiasts as described in the previous chapter. A total of 153 pro and leisure gamers participated in the survey, taking an average of 9 minutes to complete the questionnaire.

As anticipated and in line with the typical eSports fan base, most respondents are male (n = 137), between the ages of 14 and 35, averaging at 22,7. Female gamers accounted for 10% of the total

participants, which is consistent with previous research, with ages ranging from 17 to 26 and averaging at 21,3.

In overall, the participants' age oscillated between 14 to 35 years, with the vast majority of respondents (70%) being between 19 and 27. The average age was 22,6 years and the median 24. Figures 17 and 18 portray participants' age distribution and split per gender.

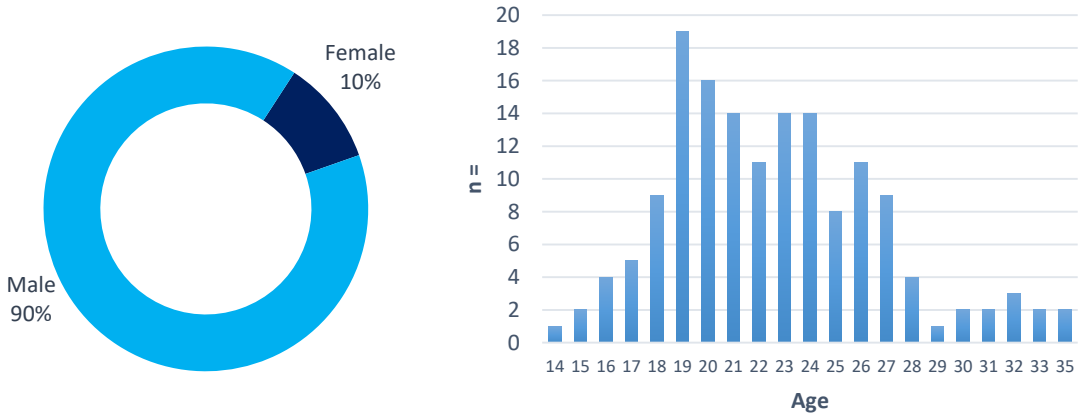


Figure 17: *Participants gender distribution. Source: Own representation*

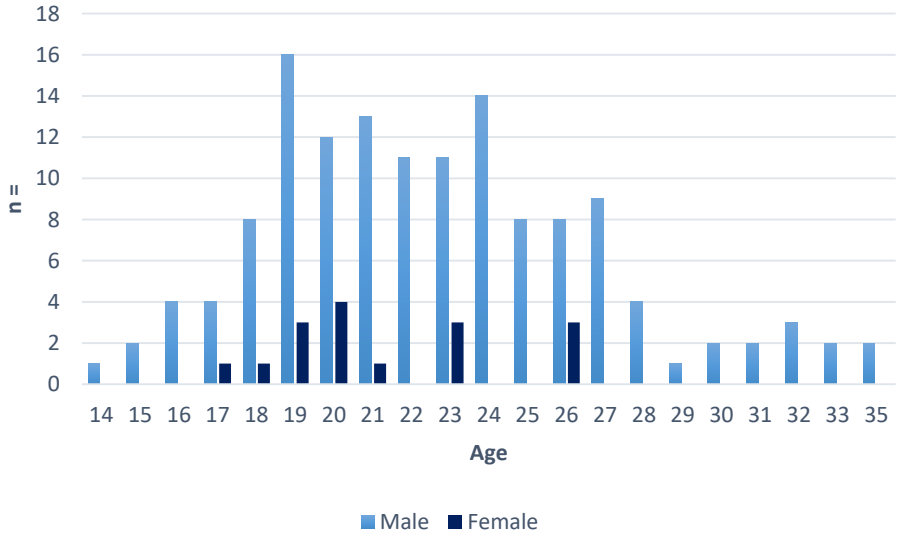


Figure 18: *Participants' age distribution per gender. Source: Own representation.*

A large majority of participants (81%; n = 124) are residents of Portugal, while the United States (3%; n = 5), the Netherlands (3%; n = 4), Germany (2%; n = 3), Romania (2%; n = 3) and the United

Kingdom (2%; n = 3) follow as the most represented countries. One of the participants decided not to reveal his country of origin. The remaining contributors come from nations as diverse as Brazil, Bahrain, Denmark, Norway, Pakistan, Russia, Slovakia, Turkey and Ukraine (Figure 19). Table 3 shows, per country, the total number of participants and their representativeness in the overall sample.

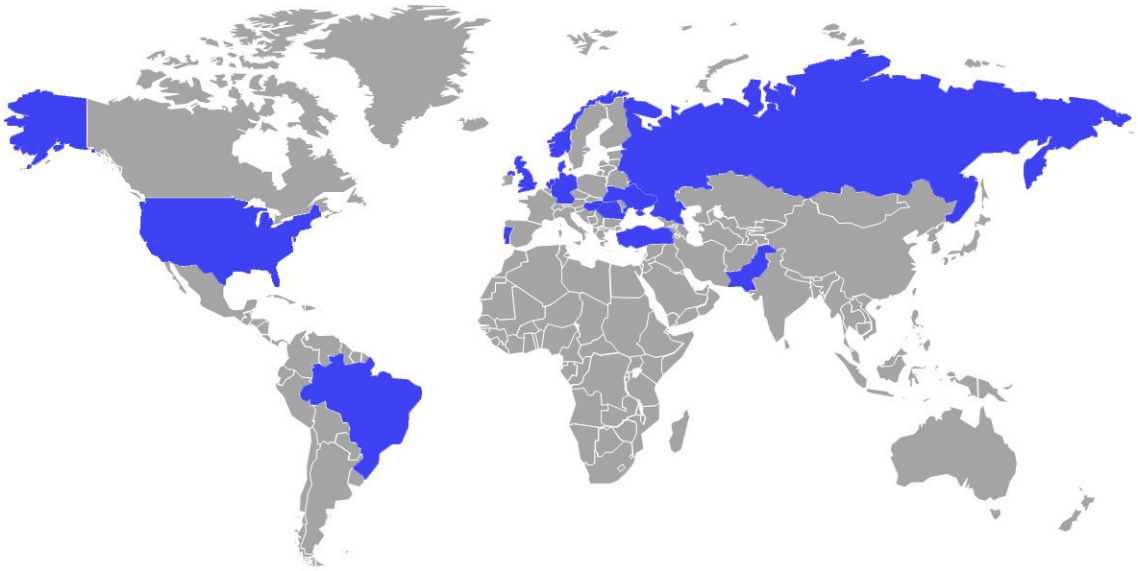


Figure 19: *Survey participants' geographic location. Source: Own representation.*

Country	**n =**	**% of total**		**Country**	**n =**	**% of total**
Portugal	124	81%		Bahrain	1	1%
United States	5	3%		Denmark	1	1%
Netherlands	4	3%		Norway	1	1%
Germany	3	2%		Pakistan	1	1%
Romania	3	2%		Russia	1	1%
United Kingdom	3	2%		Slovakia	1	1%
Brazil	2	1%		Turkey	1	1%
Not Defined	1	1%		Ukraine	1	1%
Grand Total	**n = 153**					

Table 3: *Survey participants' geographic distribution, in number and percentage. Source: Own representation.*

Most participants (92%; n = 141) are professionally active or attend a school or university, while 46% (n = 71) have completed a Bachelor's or Master's degree. A low number of respondents (2%;

n = 3) have only completed primary education. Figure 20 illustrates both occupation and education splits.

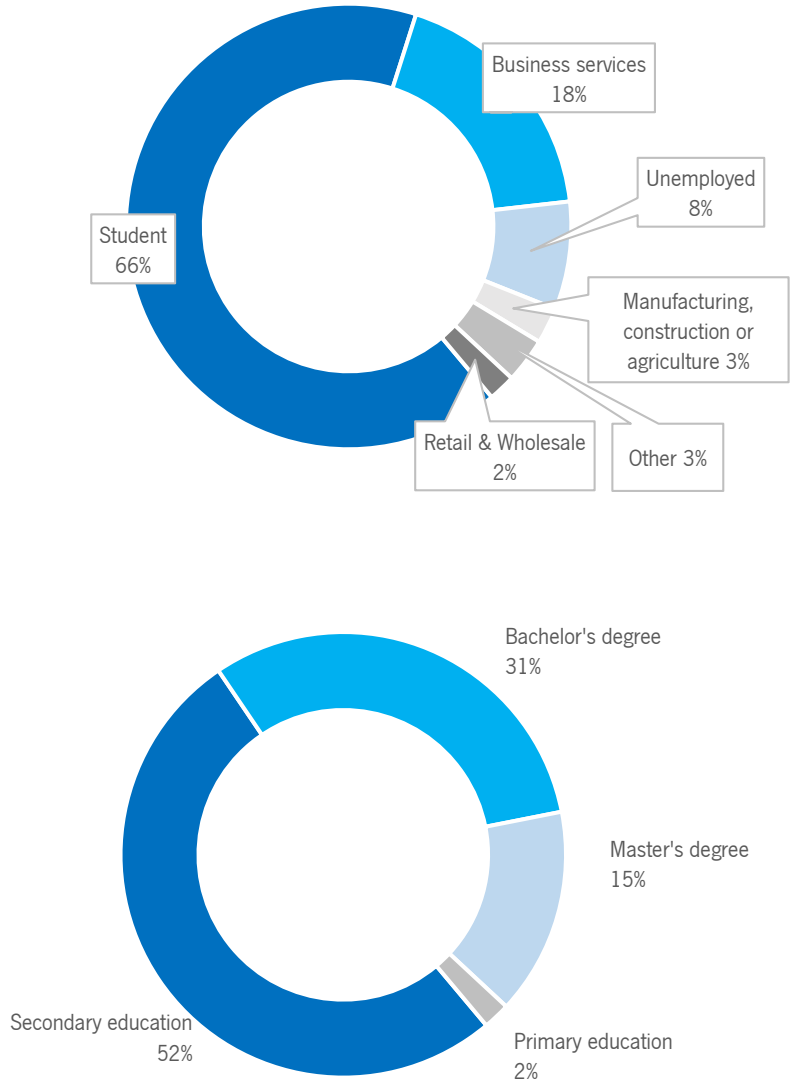


Figure 20: *Survey participants' work activities and education levels. Source: Own representation.*

Concerning the sample's gaming habits, as expected, the personal computer is the chosen gaming platform of the majority (92%; n = 140) while the gaming consoles (e.g. PlayStation or XBOX) and the mobile devices (e.g. smartphone or tablet) representing the other two most popular groups. The gaming consoles have, for this sample, a small advantage with 44% of respondents mentioning using such equipment to play videogames, versus 41% who refer using a mobile/handheld device.

A significant group of participants 21% (n = 32) rely on all three types of platforms to play their favorite games.

With reference to the usage of dietary supplements, the study sample is balanced, with 58% of respondents using dietary supplements. Among the provided list (Figure 21), caffeine noticeably leads the list of most commonly using dietary supplements, with 38% of participants consuming caffeine or caffeine based products. Green tea (18%), protein (17%), vitamins (16%) and taurine (14%) follow closely to each other among the top five most used supplements. On the opposite side of the usage spectrum, none of the participants mentioned using neither anabolic steroids nor niacin. The average gamer consumes dietary supplements on an irregular basis.

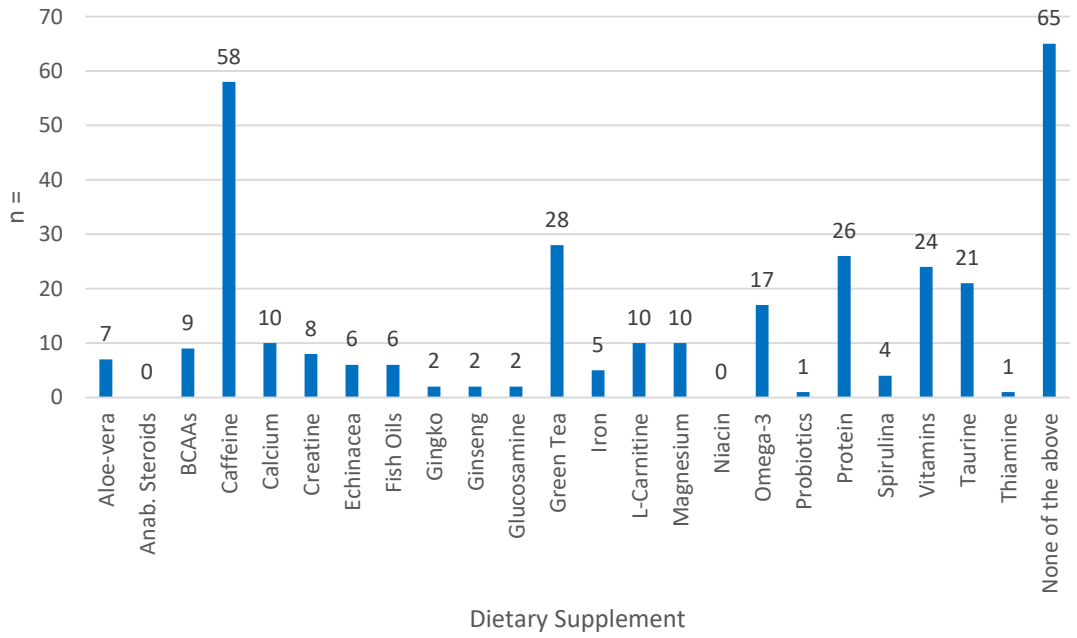


Figure 21: *Survey participants' dietary supplement consumption habits. Source: Own representation.*

On average, each participant consumes 2,1 types of supplements, while 20% of the sample (n = 30) indicate using three or more supplements and 11% (n = 17) confirms having used one or more supplements to improve his/her gaming performance. Two participants indicate using respectively 11 and 10 out of 24 supplements specified in the survey. This list was built based on different lists of the most commonly used supplements found online (e.g. ConsumerLab, 2013; Nutrition Express, n.d.). Only two participants indicated using supplements outside of this list, namely Adderall and CLA.

4. Results

4.1. Overview

The current chapter exhibits the attained results of this research, dividing them in two subchapters: qualitative and quantitative outcomes. The first subchapter is dedicated to the analysis of the interviews introduced and explained in Chapter 3.4. The latter commits to provide comprehensive representation of the quantitative outcome of the survey presented in Chapter 3.5. The most relevant results are analyzed and put in perspective in Chapter 5.

4.2. Interviews

In this section, the terms "gaming gear" and "equipment" will be repeatedly mentioned. By gear and equipment, we refer to every tool or accessory used with the main purpose of playing videogames, e.g.: keyboard, mouse, headset, mouse pads, controllers, etc.

Q1: Please describe in a detailed manner your experience with videogames, especially with the so-called eSports.

The first question aimed to give some context and background of the gaming experience of the participants. Most gamers joined the gaming community in their early teenage years, maintaining until now their connection to videogames and the eSports scene. As one gamer explains, the amount of time now dedicated to gaming differs from the time once devoted in "younger years", mostly due to professional and personal commitments. For most of these gamers, videogames are nowadays mainly a way to relax and enjoy some quality time with friends. Although some participants refer to a certain nostalgia because of the lack of time and opportunity they now have to play. "1-3 times a week, there's a golden moment where even your working buds are online and we play multiplayer (...) just like when we were younger" [Participant 1]. It is interesting to see that all these 9 gamers still save at least one time window during their weeks to enjoy their online games with their peers. Although a wide range of titles and game genres can be identified in the different backgrounds, two patterns can be identified: the importance of Counter Strike in the introduction of online gaming to this generation of gamers and the relevance of "friendship and community" in online gaming. Some of these gamers can be included in a "competitive gamer" category and two of these even took part in teams and clans. "[I] started to jump from a clan to another and (...) as I got better I joined a top10 clan of Portugal, we would play online tournaments every month and

we would practice 6 times a week, 3 hours a day" [Participant 6]. In this answer we are also introduced to the relevance that pro athletes have in younger gamers. As one participant explains: "We didn't have Idols like artists and actors, but players like HeatoN, Snajdan, Loda and so forth" [Participant 1].

Q2: What makes a brand interesting for you?

The second question was designed to provide insights into the gamers' generic preferences on brands, aiming to have a better grasp on which characteristics a brand should have to be appealing to this group. The participants' inputs touched a wide array of product characteristics and brand strategies. First and foremost, it is worth noticing four names that arise from the responses: Razer, SteelSeries, Microsoft and ASUS. Razer and SteelSeries, two brands fully dedicated to gaming, are mentioned for the sleekness and performance or their peripherals, innovation and the attention to the gaming community ("Being ahead of the curve and always thinking about its community. Razer for example" [Participant 6]). Microsoft and ASUS, technology and electronics-related companies with a vast portfolio of product and service categories are connected to robustness, reliability and price/quality relationships *("*I am personally an Asus fan guy mainly because the overall quality of their products that have high reliability and durability" [Participant 3]*).* For this group, a gaming brand must be performance oriented, with high-end product specifications and enhanced comfort, displaying a blameless overall "quality". Simultaneously, they believe a brand dedicated to gaming needs to feature other important traits and perform investments in the eSports scene – specifically – sponsoring gaming events, having renowned athletes featuring the brand's products and investing meaningfully in its product design and in "cool and functional merchandising" [Participant 2].

Q3: What kind of equipment, apparel or other merchandising branded after an eSports athlete or team do you own? What gaming equipment in general do you own? Do you believe these give you a competitive edge when compared with non-gaming gear?

The third question proposed to understand the acceptance and usage of gaming gear as well as the perceptions and beliefs around the real benefits offered by these products versus "regular" equipment. The participants not only have a clear preference for a few of the most famous gaming brands – as seen in the preceding question – but also own these exact same brands. Namely, the Danish SteelSeries, the North American Razer and the Taiwanese ASUS. With the exception of two participants, the perceptions over the performance gains offered by gaming gear and gaming branded apparel is unanimous and undisputed: gaming specific equipment provides a very clear competitive edge over normal equipment, gaming branded apparel does not. One respondent mentions that "In counter-strike for example it's the difference of missing a shot or not" [Participant 6], referring to gaming gear while another gamer believes that "merchandising branded after an eSports athlete or team does not give any competitive edge, but it's obvious that gaming gear will offer a competitive edge over non-gaming gear" [Participant 2]. However, although most participants believe gaming gear generally offers a competitive edge, one of the participants specifies that in his perception not all types of equipment are relevant or offer the mentioned performance gains in all circumstances. In fact, this gamer believes that a "mouse and keyboard make too much of a difference, although a 7.1 headset can give an important advantage on games like CS:GO where knowing the direction from which the sound came is important" [Participant 3]. Furthermore, one of the participants makes the connection between the gaming gear he owns and professional athletes who use or feature the same equipment, reinforcing the idea raised in the previous question that it is important for a gaming brand to connect with the main eSports stars. Swedish Jonathan "Loda" Berg (Alliance), North American Clinton "Fear" Loomis (retired) and Canadian Artour "Arteezy" Babaev (Evil Geniuses) are DOTA 2 superstars mentioned by this gamer. On the opposite side of the spectrum, two of the participants clearly believe that gaming gear does not provide any performance gain, referring that "the competitive edge is within the player not the equipment" [Participant 7] and that "players have to play with the equipment that they are used to" [Participant 8] being that equipment gaming specific or not.

Q4: Have you ever used any dietary supplement to enhance your performance or endurance while playing eSports? If yes, which? What do you think about the idea of improving your performance by using supplements?

Question number four was intended to assess the usage of dietary supplements among gamers as well as their views on the usage of these products to boost gaming performance. A large number of participants never used dietary supplements with the purpose of improving their gaming capabilities whereas a few participants mention using coffee and other energy drinks (caffeine) to improve their performance.

It is clear that the vast majority of the participants believe that dietary supplements do enhance performance, as will be outlined in the next question. It is mentioned that a line must be drawn in defining clearly what a dietary supplement is and what a drug is, and regulations outlining the usage of dietary supplements within competitive eSports must be created – just like in any traditional sport.

Interestingly, some participants believe that all supplements are "drugs" or "doping", while the reality demonstrates that most of these substances are used by both sports people and non-sports people alike to enhance any specific aspects of their body or minds. For some gamers, the usage of dietary supplements is seen as a way of cheating, something that destroys the goal of a sport, where "the idea is to prove that you are better with your own skill" [Participant 2]. For another participant, the usage of dietary supplements is only justified for competitive gaming, explaining why he does not feel the need to use these substances in his eSports experience, characterized by non-competitive gaming.

Q5: Do you believe you (your performance) would benefit from the consumption of dietary supplements before or during a competition? Which aspects of your gaming would you like to improve using dietary supplements? What physical characteristics should these supplements have to make it easier for you to use them?

Following the topic of the previous question, question number five aimed to give us insights into 1) the common beliefs with regards to the real benefits of the usage of dietary supplements; 2) the facets/traits of gaming performance which would benefit most from using dietary supplements and 3) the form/shape/support (pills, liquids, gums, water soluble powders, etc.) of dietary

supplements which would be easier to use whilst competing, therefore enlarging the likelihood of acceptance of these products among the eSports/gaming community.

1) It is fairly consistently accepted that individual performances would improve from the usage of dietary supplements while competing. Among the gamers that previously indicated using some sort of dietary supplements to play, some examples of the effect different substances/products have on the body are mentioned. "A tea that calms your nerves" [Participant 1], "that caffeine and ginseng-soup you had earlier that makes you clearheaded" [Participant 1] or even some placebo effect a substance may cause ("sometimes you get into the flow merely because of the feeling what you consumed gives you" [Participant 1]). While most gamers defend that their performances would benefit if they used the right supplements, one participant believes that his performance would not be influenced by these substances, admitting that he does not really know if "they [supplements] are as efficient as people say they are" [Participant 3] and correlating his performances fluctuations to his mood and willingness to play.
2) The participant group was also fairly consistent in the performance aspects they would mostly like to improve: quickness and precision of movements, reduced reaction times, better focus and increased stamina. It is imperative to note that these are aspects commonly associated as key to succeed in the competitive scene of any videogame
3) Liquids, food (e.g.: chocolate bars) and gums seem to grasp the collective preference of the group. The group also reveals a common preference for having a product that provides the desired result but does not look like "something with the main goal of improve my gaming" [Participant 5], denoting that pills would feel like a forced way of achieving the desired benefits. A few key characteristics are mentioned by some participants: focus, noise, flavor and smell. Whilst some participants mentioned that they would enjoy some performance enhancing gums, other gamer pointed out to the fact that "chewing stuff could be concentration-breaking as you're playing" [Participant 1] and "the sound it makes goes into the microphone" [Participant 1].

Q6: Imagine a brand that produces dietary supplements exclusively dedicated to gamers and eSports athletes. Which aspects/values/insights should this brand assume and communicate to motivate you to use its products? Do you have any good example of a brand working well with gamers?

Still in the topic of dietary supplements for gamers, the final question of the interview aimed to get a deeper understanding of the points raised in the previous questions and how a dietary supplements brand should address gamers' needs and efficiently develop and communicate its products, benefits and values.

On product level, according to the group brands should focus on healthy products which would not harm the players in any sense, efficient and with a fair price. These should also be non-messy and not too heavy – a product that energizes and refreshes, enabling the gamers to play long hours without feeling tired and without declining performance. Preferably, these products should also be "something that lasts preferably instead of devoured in minutes" [Participant 1] and with special attention to the consumption noise as "nobody likes to hear you eat things over the voice-application" [Participant 1].

On brand strategy level, gaming events and gaming communities are once again discussed. A participant believes that a brand should support tournaments and events dedicated to eSports, offering parts of profits to these competitions. Another gamer refers that this brand must understand the gaming community, communicating closely with the players and having good, close relationships with professional athletes who have "brutal impact on the community, like any other sport" [Participant 5]. One last participant believes that such brand should communicate and reinforce the idea that nothing is impossible with the right amount of dedication.

The results of the interviews were combined with the information retrieved from the literature review and used to design a quantitative questionnaire. The research model applied in questionnaire design is portrayed in Appendix 7.1. The following sub-chapter addressed the questionnaire outcomes.

4.3. Questionnaire

4.3.1. Gender associations

Marginally significant correlations were found between participants' gender and the preference for gaming merchandise ($U = 767.500$, $p < .05$), with **female gamers having a stronger preference for these accessories than male** (mean rank: 95.53 vs 73.69).

Simultaneously, the results show that **more women** than men (68.8% vs 37.2%) **would be interested in playing better under pressure** ($\chi 2\ (1) = 5.91$, $p = .015$).

Men, on the other hand, **would be more tempted** than women (mean rank: 79.96 vs 53.94) **to buy a dietary supplement if it was a *sugar free candy*** ($U = 727$, $p < .05$).

No further associations or differences were found between gender and any other variable.

4.3.2. Age associations

For the purpose of this analysis, we have clustered participants in five groups as illustrated in table 4.

Age cluster	N=
14-17	12
18-21	58
22-25	47
26-30	27
31-35	9

Table 4: *Age clusters created for survey analysis. Source: Own representation.*

Statistically significant differences were identified between the participant's age and the preference for certain marketing strategies adopted by gaming brands. **The youngest** (n = 24; mean rank: 90.25) **and the oldest gamers** (n = 7; mean rank: 99.43) **have a bigger preference for brands that sponsor eSports tournaments, teams or players than any other group** ($U = 10.104$, $p < .05$). The age group between 26 and 30 years old (n = 24; mean rank: 62.77) is the cluster that shows lower preference for brands who sponsor eSports events, clubs or celebrities.

Similarly, it is the same age group (n = 24; mean rank: 59.10) that shows less inclination for brands that relentlessly pursue innovation (U = 12.46, p < .05). Just like in the first statement, **the youngest** (n = 24; mean rank: 92.65) **and the eldest groups** (n = 7; mean rank: 106.86) **are those who show higher preference for innovative brands, which are always ahead of competition**.

Statistically significant associations were also found between the age clusters and the usage of specific dietary supplements. While a higher percentage (n = 4; 16,6%) of participants between 14 and 17 years old use Aloe Vera supplements ($\chi 2$ (4) = 12.87, p = .012), a greater proportion (n = 13; 30,2%) of gamers between 22 and 25 consume protein-rich supplements ($\chi 2$ (4) = 14.26, p = .007).

Similar statistically significant associations were also found between the participant's age and the desire to improve particular aspects of their gaming lives. **Young gamers** (n = 6; 25%) **would like to increase their "willingness to play at all times" more than any other group** ($\chi 2$ (4) = 10.61, p = .031), whereas **gamers in the 22-25 segment** (n = 8; 18,6%) **would like to rectify wrist or fingers problems more than any other group** ($\chi 2$ (4) = 10.53, p = .032).

Furthermore, statistically significant associations were also found between the age groups and the consumption of coffee. **Participants in the 22-25 group** (n = 25; 58,1%) **agree or strongly agree with the statement "I drink coffee every day."** ($\chi 2$ (16) = 32.35, p = .009). This group is followed by the 14-17 (n = 13; 54,2%) and the 26-30 group (n = 13; 54,2%). Other associations were also found between the age groups and the attitudes towards buying a dietary supplement, which would improve one's concentration ($\chi 2$ (16) = 27.56, p = .036). **Older gamers, between 31 and 35 years old are more likely to buy a supplement that would increase their focus than any other group. This group is seconded by the youngest segment**. Gamers between the ages of 18 and 21 are mostly unwilling to buy a supplement, which would help them to increase their attention while playing, with 61,8% (n = 34) of the participants in this group disagreeing or strongly disagreeing with the statement "I would buy a supplement which improved my focus".

4.3.3. Occupation associations

Participant's occupation also influences their gaming behaviors as well as their attitudes and consumption habits of dietary supplements. Statistically significant associations were found between participants' occupation and the devices used to play videogames ($\chi 2$ (49) = 97.84, $p < .001$). While the PC is the platform of choice for the large majority, **44,6%** (n = 45) **of students exclusively play on their computers** while only 4% (n = 4) rely on their gaming consoles for gaming experiences. On the other hand, **participants working in business services tend to rely on a larger spectrum of platforms**. The computer-console combination is the preference of 32,1% (n = 9) gamers working in business services, while 25% (n = 7) of these add the mobile interface to the equation. Furthermore, half of unemployed participants (n = 6) also exclusively play on their personal computers. No interesting discoveries were attained for the remaining groups.

Moreover, the survey results also indicate that students (n = 101, mean rank: 70.97) and unemployed gamers (n = 12, mean rank: 75.46) play videogames for a shorter number of years than participants whose main occupations are in business services (n = 28, mean rank: 94.25).

Additionally, the results show associations between the participants' job and some of the most prominent videogames: FIFA ($\chi 2$ (7) = 16.04, $p < .05$) and League of Legends ($\chi 2$ (7) = 16.55, $p < .05$). While **participants working in business services prefer to play FIFA** (35,7%, n = 10), **students** (50,5%, n = 51) **and unemployed** (50%, n = 6) **gamers have a preference for Riot's MOBA.**

Statistically significant differences were identified between the occupation and the participants' brand preference drivers. **Gamers working in business services** (n = 28, mean rank: 87.14) **have a higher preference for a "brand that features eSports celebrities in their marketing campaigns"** (U = 15.38, $p < .05$) than students (n = 99, mean rank: 74.64) or unemployed gamers (n = 12, mean rank: 56.17). Interestingly, the former cluster (n = 28, mean rank: 87.14) also **has a higher tendency to "buy cheap equipment over high-priced, higher quality gaming gear"** (U = 14.725, $p < .05$), when compared to students (n = 99, mean rank: 74.64) or unemployed gamers (n = 12, mean rank: 56.17) **despite the theoretical higher disposable income.**

In addition, associations between the participants' job and the consumption of protein-based supplements ($\chi 2$ (7) = 14.147, $p < .05$) and vitamins ($\chi 2$ (7) = 19.977, $p < .01$) were also

identified. In both cases, **gamers working in the business services tend to be the main users among all job clusters**. Protein-based supplements are used by 39.3% (n = 11) of participants working in business services, while merely 11.8% (n = 12) of students report consuming these supplements. Consistently, vitamins are consumed by 25% (n = 7) of participants working in business services while only 9,9% (n = 10) of students indicate using these supplements. Also, when questioned about their intentions to buy a supplement as well as their general beliefs about dietary supplements, **business services' workers are more likely to buy supplements if they were "sure it would work"** ($\chi 2$ (35) = 64.95, $p < .01$) **and agree less with the statement "dietary supplements are a bad thing"** (U=15.43, $p < .05$).

4.3.4. Education associations

Marginally significant differences were found between the highest education level and the number of years participants have spent playing videogames (U = 9.795, p <. 05). While gamers with a Master's or Bachelor's degree (mean Rank: 88.61 and 85.60 respectively) play for longer years than other participants, participants with only primary education completed consider themselves gamers for a longer time than participants with secondary education completed (mean Rank: 78.17 and 68.35 respectively).

Marginally significant differences (U= 10.645, p <. 05) were also found between participant's education and the frequency these use dietary supplements. The data indicates that **gamers with secondary education or bachelor's degree consume supplements more often than the other groups.** The participant's with master's degree are those who less frequently intake dietary supplements, as shown in table 5.

Education	**N=**	**Mean Rank**
Primary	3	78.83
Secondary	79	82.47
Bachelor's	48	79.69
Master's	23	52.35

Table 5: *Frequency of usage of dietary supplements per education tier. Source: Own representation*

This situation changes slightly when considering the intake of specific supplements: caffeine (U = 15.110, p < .01; spirulina (U = 8.926, p < .05). **Gamers with master's degree are those who consume more caffeine** (n = 23, mean rank: 101.22) while participants with a secondary education are those who rely less on this supplement (n = 79, mean rank = 68.34). Moreover, in this sample, gamers with bachelor's degree and the only ones who mention consuming spirulina (mean rank: 81.38).

Furthermore, statistically significant differences (U = 13.26, p < .01) were also found between the participant's level of education and the consumption behavior of coffee. **Participants in higher education tiers have more frequent intakes of coffee** (Table 6).

Education	**N=**	**Mean Rank**
Primary	3	35.83
Secondary	79	67.63
Bachelor's	48	86.11
Master's	23	95.52

Table 6: *Frequency of coffee consumption per education tier. Source: Own representation*

4.3.5. Brand awareness & brand preferences

To portrait the eSports scene, it was important to understand which brands dominate the consumers' mind. Among 144 valid responses, 33 brands were captured as being top-of-mind to one or more participants. Razer and SteelSeries are the gaming top-of-mind brands to 15.3% (n = 22) and 11.1% (n = 16) of the sample. The remainder of the Top 5 is dominated by the gaming consoles PlayStation [6.9%, n = 10] and Nintendo [6.3%, n = 9], as well as the developer and distributor Valve [6.3%, n = 9]. The top-of-mind list consists to a great extent of hardware brands (e.g. Razer, SteelSeries, PlayStation, Nintendo) and software developers and videogames (e.g. Valve, Blizzard, Electronic Arts, Steam). It is, nevertheless, important to note that two gaming teams are also referred to as top-of-mind brands: fnatic and Na'Vi, both referred to as top-of-mind by one participant. Figure 22 reveals all participants' top-of-mind brands.

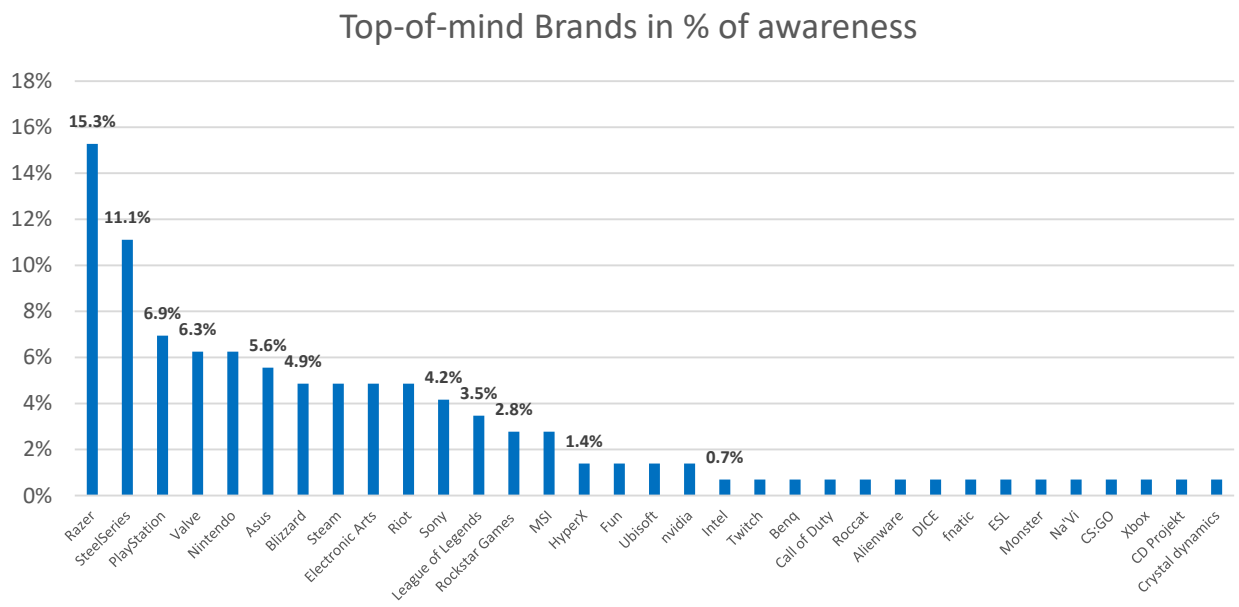


Figure 22: *Top-of-mind awareness. Source: Own representation*

No correlations were found linking brand awareness and characteristics such as age, gender or education, whereas the respondents' main occupation is correlated with brand awareness ($\chi 2$ (224) = 297.95, p = .001). **League of Legends** (100%, n = 5), **Riot** (85,7%, n = 6) **and Steam** (83,3%, n = 5) **are top-of-mind brands almost exclusively among students, whereas brands such as Asus, Blizzard, Electronic Arts, Nintendo, Razer, PlayStation, SteelSeries and Valve are more widespread across the entire occupational spectrum.**

We have also questioned the sample on what, in their opinion, makes a gaming brand interesting and preferable. Confirming what was captured during the exploratory interviews exposed in Chapter 4.2., there seems to be a consensus around the most important characteristic of a brand investing in the gaming industry. **The gaming community fundamentally believes that a brand must understand and invest in the community, as that is what gamming is all about – community** (M = 4.4). **Sponsoring eSports tournaments, teams or athletes** (M = 3.8) **and being considered an innovative brand** (M = 3.8) **are also considered to be fundamental traits of a gaming brand.** Table 7 shows in greater detail which brand features are most appreciated by the sample group (n = 153).

How much do you agree with the following statements about brands that invest in eSports?	**Average, *where 1 is strongly disagree and 5 strongly agree.***
Understanding and investing in the gaming community	M = 4.4
Sponsoring gaming tournaments, teams and players	M = 3.8
Being innovative, always ahead of competition	M = 3.8
Supported and invested in eSports since the early years of the scene	M = 3.8
Exclusive focus on quality, regardless of the price	M = 3.6
Brands are irrelevant for me	M = 3.5
Gaming Merchandise	M = 3.5
Focuses exclusively on performance	M = 3.4
Featuring eSports celebrities in marketing campaigns	M = 3.2
A gaming brand makes me play better.	M = 3.2
Cheap over high-priced, higher-quality brands	M = 3.1

Table 7: *Sample's most desired brand characteristics. Source: Own representation.*

Statistically significant differences ($p < .05$) were found between the participant's top-of-mind brands and the importance given to the brand's investment in the gaming community. For the purpose of this analysis, we have only considered brands mentioned by five or more participants. The results indicate that **participants whose top-of-mind gaming brands are Blizzard** (mean rank: 99.50), **League of Legends** (mean rank: 99.50), **Steam** (mean rank: 89.25), **Razer** (mean rank: 84.36) **and SteelSeries** (mean rank: 84.13) **consider the brand's investment in the community more important than the participants whose brands top-of-mind are, for instance, Nintendo** (mean rank: 66.50), **Valve** (mean rank: 48.80), **Electronic Arts** (mean rank: 48.29) **or Riot** (mean rank: 40.43).

Statistically significant associations were found correlating the proposed drivers of gaming brands' preference and the likelihood of purchasing dietary supplements to improve gaming performance. The results show that **the higher the effect of these drivers on the gamers, the higher the likelihood of them considering using dietary supplements to improve their gaming performance** ($r_s = .174$, $p = .032$).

In addition, when looking into the individual drivers of preference, more thought-provoking associations are identified. Table 8 portrays the associations between each brand preference driver

and the behaviors relating to the likelihood of purchasing dietary supplements. Only significant associations identified are labeled.

Reason to buy a dietary supplement / Drivers of brand preference	Sponsoring tournaments, teams or players	Featuring eSports celebrities in marketing campaigns	Understanding and investing in the gaming community	Exclusive focuses on performance	Focuses on cheap prices over quality	Brands are irrelevant	Fondness of gaming merchandise	Innovative and ahead of competition	Gaming gear improves my performance
I would buy a supplement which improved my mouse click precision.	rs = .220, p = .007	rs = .164, p = .044		rs = .207, p = .013			rs = .171, p = .036		
I would buy a supplement which improved my reaction times.	rs = .168, p = .039								
I would buy a supplement which improved my focus.	rs = .201, p = .013		rs = .179, p = .028						
I would buy a supplement which enabled me to play/practice longer hours without feeling tired.	rs = .169, p = .038			rs = .261, p = .050	rs = .231, p = .004	rs = .257, p = .001		rs = .169, p = .038	
I would consider using dietary supplements to improve my gaming performance.	rs = .161, p = .048	rs = .170, p = .037							rs = .191, p = .019
Dietary supplements are a bad thing.			rs = .170, p = .037						
I think that using dietary supplements would improve my gaming performance.									rs = .235, p = .004

Table 8: *Associations between each brand preference driver and the behaviors triggered. Source: Own representation.*

4.3.6. Game genres preferences

No statistically significant differences or associations were found concerning individual game titles and any other variable. Aiming to find some interesting correlations, we have classified the 15 titles provided into six groups: Shooters, MOBAs, Sports Games, Card Games, RTSs and Action games. Table 9 shows how the titles were split between these genres.

Game Genres					
Shooters - 1	**MOBA - 2**	**Sports - 3**	**Cards - 4**	**RTS - 5**	**Action - 6**
ARMA	DOTA 2	FIFA 201x	Hearthstone	Starcraft	Street Fighter
Battlefield	LoL	Rocket League			World of Tanks
CS:GO	Heroes of the Storm				
Overwatch	Smite				
Team Fortress 2					

Table 9: *Author's game title split per genre. Source: Own representation.*

With the above-mentioned split, statistically significant differences ($p < .05$) were identified between the age groups who play action games, with the older gamers (age between 31 and 35) playing more action games (such as Street Fighter or World of Tanks) than all the other groups (mean rank: 94.86).

Furthermore, statistically significant differences were also found between the aforementioned game genres and the participant's main occupation ($p < .05$). The results show that **gamers whose job is within business services** (mean rank: 91.38) **are more likely to play sports** games than unemployed gamers (mean rank: 52.50) or students (mean rank: 75.72).

4.3.7. Gamers needs

We have asked the participants which aspects of their gaming lives they would mostly like to improve. In line with the outcomes of the exploratory interviews, the survey results show that **better reaction times** (44%), **enhanced focus** (41%) **and superior performance under pressure** (41%) **are the characteristics gamers most seek to improve.** On the other end of the spectrum, less gamers mentioned having the need of improving/fixing wrist/fingers problems (n = 13, 8%), their willingness to play at all times (n = 15, 10%) and their energy levels (n = 15, 10%).

Additionally, 6% of participants (n = 9) mentioned not feeling the need to improve any of the gaming aspects they were presented in the survey.

4.3.8. Product characteristics

In an overall analysis, the **results indicate that gamers would most likely be interested in purchasing a supplement if it was a safe** (M = 3.7), **nicely flavored refreshing drink** (M = 3.2) **which they were sure would provide the promised results** (M = 3.1). On contrary, pills (M = 2.0) and soluble powers (M = 2.4) would be least desirable characteristics for this sample.

4.3.9. Supplements and doping

During the exploratory interviews, we were introduced to the respondents' associations between dietary supplements, drugs and doping. To understand if this was a widespread concern, the survey participants were asked about their beliefs in this matter. Opposing the interview outputs, the survey results indicate that the gamers do not associate the usage of dietary supplements to negative or forbidden substances. The **vast majority of gamers** (79%, n = 120) **either disagrees or strongly disagrees with the statement "I think that drinking coffee or Red Bull to energize me while playing is the same as cheating"** (M = 1.7). Similarly, **when confronted with the affirmation "I think that using dietary supplements for gaming/sports should be forbidden", 53% of gamers** (n = 81) **either disagreed or strongly disagreed** (M = 2.4). Moreover, **only 9%** (n = 14) **of participants believe that "Dietary supplements are a bad thing"** (M = 2.4).

5. Conclusion

5.1. Overview

In this last chapter, we discuss the results presented in the previous chapter, putting them in perspective with prior literary review. We answer the proposed research questions referring the applicable limitations of the study, make recommendations for marketers accordingly and recommend future academic investigations to complement this project and develop eSports on an academic level.

5.2. Research findings and recommendations for marketers

As introduced in Chapter 1, the final goal of this project was to understand whether eSports are an attractive opportunity for companies operating in nutrition and supplementation industry and, if so, how they should market their products.

This question was split into four sub-questions:

Q1: What are the market characteristics?

eSports is a booming industry, in exponential growth with millions of enthusiastic followers globally, expected to reach to the billion dollar revenue and the six hundred million reach marks in the short-term. More than a revenue-making industry, eSports are conquering the right to be considered a legitimate sport with real expectations of representing the digital world in forthcoming Olympic Games.

This massive audience hardly ever found in traditional media made it economically necessary for global corporations to enter the industry, investing in athletes, teams and events. With big corporations and a passionate community backing-up professional and semi-professional competitions, eSports became exciting for gamers not only from a competitive perspective but also from a financial viewpoint. The greater financial incentives to outperform rivals created and motivated a competitive landscape between players and teams to be more capable, quicker and more skilled. Being among the best became a synonym for being financially stable and even wealthy with the eSport you play.

As happens in traditional sports, this increased competitiveness creates a need to resort to external assistance to win over competition. Dietary supplements are used as an aid to keep up with intense training, improve performance and overcome opposition.

The typical eSports enthusiast, according to previous research, is most likely a man between 20 and 30 years old (Griffiths, Davies and Chappell, 2003; Newzoo, 2016), who plays competitively an average of 6,5 hours per week (Entertainment Software Association, 2016) and has a medium-high income of $45.000 (SuperData Research, 2015, p. 6). The present survey results not only confirm this profile but reveal a few enlightening facets of the potential user of dietary supplements within eSports. Gamers who believe that using gaming gear improves their gaming performance, also believe that dietary supplements would assist them in bringing their game a step ahead. These gamers are also more likely to buy dietary supplements with this end goal in mind. This means that the competitive gamer who uses gaming gear to be ahead of competition can be, in fact, a commendable user of dietary supplements for gaming. In fact, the results also indicate that these gamers have positive attitudes towards dietary supplements, using supplements for other purposes (such as Aloe Vera or Protein-rich supplements). The frequency of usage and type of supplement consumed varies subject to age, education and profession with different groups consuming different supplements in different quantities.

Based on the above we have developed the following profile, or persona (Figure 23), of the typical eSports enthusiast who would be keener to use dietary supplements to fuel his gaming performance needs. This profile is intended to help brands in defining their potential customer and can be used as a base to create different user segments depending on the gamer's habits, needs and preferences as outlined in the following pages.

Name: Daniel
Age group: 22-26 years old
Education: Bachelor's Degree
Main occupation: Marketing Manager
Gross yearly income: €20k-€50k
Status: Single
Residence: Urban area
Living with: Girlfriend, Eva
Plays: CS:GO two hours/day
Watches: CS:GO and DOTA 2 streams
Dietary supplements: Protein, BCAAs, Vitamins
Would take DS to improve his focus while playing

Figure 23: *User persona. Source: Own representation.*

Q2: Which marketing strategies and channels should be used by the brands that decide to enter this market?

The results of this investigation have revealed that the online gaming industry is, in great part, a global phenomenon. Not only in the sense that it is a worldwide occurrence but also as a harmonious reality with no statistically significant differences or associations being found between participants from different nations. Although conscious of the limitation imposed by the reduced number of non-Portuguese participants, this leads us to believe marketers should see, think and act globally.

See and think globally: Trends and movements are formed faster than ever in the connected world, especially with this "hyper-connected" public who on average plays videogames on a daily basis; who follows Twitch channels and vibrates with gaming celebrities; who reads and posts on Reddit about their gaming adventures. Brands must track global trends and movements in real-time and use them in their favor, positioning themselves as innovative and ahead of the curve.

Act globally: As we have previously seen, nationalities and geographic locations of gamers are not key segmentation criteria for gamers. Gamers think, see, breathe and live online. We believe marketers in the supplementation industry targeted to gamers should embrace this reality and all

the openings it can bring by focusing their marketing efforts not in different countries but rather through other segmentation criteria, such as type of gamer, benefits pursued or preferred game genre. Brands must be conscious of the different game tittles played and watched by different target groups. As Jurre Pannekeet (Newzoo, 2017a, p. 3) stated: "There is no such thing as reaching the eSports Enthusiast. Every franchise has its own community of players and viewers and no single game reaches them all. (...) Understanding and addressing the differences between franchises is a key element of a successful marketing campaign." Jurre's statement is confirmed by this study results that indicate, for example, that gamers working in business services prefer to play FIFA, while students rather spend time with League of Legends. If a marketer aims to target his brand to an older audience, an action game (Street Fighter and World of Tanks) should be considered as a potentially effective channel as gamers in this age segment play these games more than any other group.

Gender also appears to be of lesser importance when creating market segments. Most preferences, attitudes, behaviors, beliefs and needs studied are gender irrelevant, with both male and female gamers providing similar inputs to the variables in study. Nonetheless, considering that most gamers are boys and men and that no significant differences were found for the female group, marketers should focus their efforts in the male population with few product and communication tweaks to women.

As previously pictured, gamers tend to prefer innovative brands which sponsor eSports players, teams and events. These characteristics assume a particular importance when targeting younger gamers who favor them above any other group. While the innovative trait and being exposed via sponsorships have a very positive impact on preference, investing in the gaming community has the most prominent impact in gamers' preference. More to that, the preference for brands which invest in the community is significantly greater in gamers whose brands top-of-mind are brands deeply rooted in eSports (such as Razer, SteelSeries, League of Legends or Blizzard). As introduced in Chapter 2.2., Red Bull is one of the non-endemic brands that already understood the significance of not only sponsoring but also investing in the gaming community. The Austrian company sponsors and organizes tournaments, sponsors teams and athletes but also has its own high-tech lab to improve pro-athletes (Figures 24 to 27).

Figure 24: *Red Bull Battle Grounds event. Source: www.redbull.com*

Figure 25: *Red Bull OG team badge. Source: www.esportsobserver.com*

Figure 26: *Leffen, Super Smash Bros. athlete sponsored by Red Bull. Source: www.reddit.com*

Figure 27: *Red Bull High Performance eSports lab. Source: www.fortune.com*

Marketers must not only develop reliable, durable and well-priced products but also develop their brands to be perceived innovative and ahead of the curve, but more decisively must ensure that the correct marketing efforts are being optimized to promote their brands and reinforce its positioning. Both sponsorships and community development efforts must be carried out.

Occupation also plays a defining role in segmenting the potential market of gaming specific dietary supplements. The results indicate that gamers working in business services are the biggest consumers of some of the most prevalent dietary supplements. Simultaneously, business services gamers are those who would most likely buy a dietary supplement if they were sure it would deliver to its proposition and less likely to believe that dietary supplements are a negative thing. Gamers working in business services tend to play on more platforms than any other group while they are also the group who plays sports games the most, with distinct relevance to FIFA. The investigation also shows that these gamers are those who have a stronger preference for brands that feature eSports celebrities in their campaigns. Concurrently, this cluster has a bigger tendency for buying cheaper gaming gear instead of higher quality equipment.

In Chapter 2.2. we have introduced the concepts of endemic and non-endemic brands in eSports as well as the associations between game titles and brand preference identified by Newzoo. These concepts are interesting and important to contemplate as they can support marketers in their efforts to enter a new market unfamiliar to the brands they represent. Looking at the gaming industry from an endemic perspective, marketers can learn from the successes achieved by well-established firms as Razer or SteelSeries. The survey results confirmed that the top-of-mind brands among gamers are in line with the inputs obtained from the exploratory interviews conducted as well as the multiple opinion articles that can be found online. Marketers should explore and learn from these enterprises, understand what made them popular in the industry and adapt their effective strategies to the brands and products they represent. From a non-endemic lens, marketers should deep-dive in the distinct game titles communities and comprehend which associations are being made between the franchises and the brands pointed out by Newzoo's (2017a) research. In a subsequent step, compare with their brands' positioning, values and target groups and use these findings as a robust base to select which titles are suitable for their brands as marketing and communication channels. Furthermore, the survey results noted a strong correlation between the influence of the brand preference drivers presented to the participants and the likelihood of purchase of dietary supplements. In practice, this means that the more sensitive gamers are to these tactics or characteristics, the more likely they are to buy supplements. Nutrition brands should explore this association by directing their marketing and communication efforts to the tactics exposed in table 8 (Chapter 4.3.5.). Considering the results obtained in this investigation, we are able to point towards a few tactics marketers should rely on to promote specific nutrition products (Table 10).

Product	Marketing tactics
Dietary supplement to improve click precision	• Sponsorship • Gaming celebrities in campaigns • Positioning as performance only brand • Gaming merchandise
Dietary supplement to improve reaction times	• Sponsorship
Dietary supplement to improve focus	• Sponsorship • Invest in gaming community
Dietary supplement to improve endurance	• Sponsorship • Positioning as performance only brand • Low price • Positioning as innovative brand
Dietary supplement to improve performance	• Sponsorship • Gaming celebrities in campaigns

Table 10: *The preferable tactics to promote specific dietary supplements. Source: Own Representation*

Both from an endemic and non-endemic viewpoint, it is thought-provoking to understand that in two eSports teams emerge as top-of-mind gaming brands in our investigation. This demonstrates the significance of fandom in eSports, thus pointing out an opportunity for brands to easily enter its target group mind through sponsorships, partnerships or associations with well-known teams in various eSports.

Q3: Which existing or latent needs among gamers can be fulfilled by the consumption of dietary supplements?

As already introduced in the previous question, gender does not seem to play a relevant role in the majority of needs and preferences studied, with both female and male gamers responding similarly to the same stimuli in most questions. Still, women have shown greater preference for gaming merchandise and for supplements that would allow them to improve performance under pressure.

Age, on the other hand, is a central characteristic to consider when segmenting gamers' needs. Younger gamers would like to expand their willingness to play at all times, while gamers in the age category between 22-25 years old would like to solve and prevent finger and wrist problems often associated with long hours of gaming. Older gamers (26-30) should, nevertheless, not be ignored

by marketing efforts, as it is the group who would mostly likely buy dietary supplements to improve their focus while gaming.

Each of the aforementioned groups of people comprises a set of needs that can be fulfilled by different supplements. Marketers should be mindful of these specific and existing needs, exploring them to more easily penetrate this new market. Potentially, their strategies could leverage the different communities to expand sales to other groups via reference and word-of-mouth. Across all age, gender, education and occupation clusters the most noticeable needs can be summarized in three forms: reaction times, focus and performance under pressure. Brands should focus their efforts in creating, market and communicate supplements that allow gamers to improve at least one of these gaming needs.

Q4: Which performance, consumption method and organoleptic characteristics should the supplements possess to increase their attractiveness for gamers?

Disregarding a potential single purchase due to well-orchestrated marketing and communication strategies, we believe that to ensure a recurring purchases by gamers, dietary supplements must be developed with two congruent streams: 1) performance features, and 2) consumption methods and organoleptic characteristics.

Performance: On one hand, results indicate that gamers would most likely buy dietary supplements to tackle their gaming needs if they were confident the product would indisputably perform according to expectations. Concomitantly, safety of usage is also in the epicenter of gamers' demands to consider the purchase of such product. Brands must ensure full compliance with health and safety regulations, while focusing their budget efforts in developing trust in their product and positioning themselves as a reliable, high-performing aid for gamers looking to improve their game.

Consumption mode and organoleptic characteristics: Equally significant, fitting and virtuous usage methods, flavors, textures and aromas are essential to ensure that a consumer that tries the supplement, repeats the purchase on a recurrent basis. While nicely flavored refreshing drinks with ergogenic capabilities appear to be universally desirable, supplements in the form of sugar-free candy would more straightforwardly be accepted by male gamers. In contrast, tablets and soluble

solutions seem to be less desirable throughout the gamer's spectrum. The key conclusion for marketers is that gamers envision the usage of dietary supplements as an enjoyable experience, using products that not only improve their performance but also give them pleasure in doing so.

Lastly, it is crucial that companies, brands and marketers consider the implications of anti-doping regulations have in the sports and will progressively convey to the electronic sports scene. These rules and WADA's prohibited list should not discourage any brand from entering the eSports nutrition industry. They should, though, set clear guidelines for product development and market introduction, as brands have to ensure their products are compliant with the rules of the game. Although dismissed by the quantitative results, the exploratory interviews pronounced potential usage resistance due to negative associations with doping and drugs. Brands must be ready to position themselves away from these two concepts, educating the community and demystifying any negative association.

5.3. Study limitations and future research recommendations

The aim of this study is to explore the opportunities eSports offer to supplementation brands. As a pioneer study combining two previously unmatched subjects, it must be interpreted with some limitations and hopefully become a foundation for future research into the topic. The shortage of prior academic and scientific work is, further to a challenge, a limitation of this study as the underpinning of the theory and hypotheses formulated relied significantly on popular media, rather than scientifically accurate work. Furthermore, despite being a mindful decision, conducting interviews via electronic tools with a clearly defined structure and without moderation might also be a study limitation. Further insights could have been retrieved if an interviewer have been involved.

The study's sample provides a good understanding of the market potential for Portugal, where most participants are located. As no statistically significant differences or associations were found between the participants' geographic location and any other variable, we believe the results offer a good overview of what can be expected in other geographies, despite the fairly limited sample in countries other than Portugal. Future research should focus on exploring other parts of the globe.

Future research exploring the interest of gamers in specific supplements and their particular benefits will contribute for a better understanding of the opportunities this digital phenomenon has to offer. It might also be interesting to understand what the top of mind brands in the industry are doing differently from competition.

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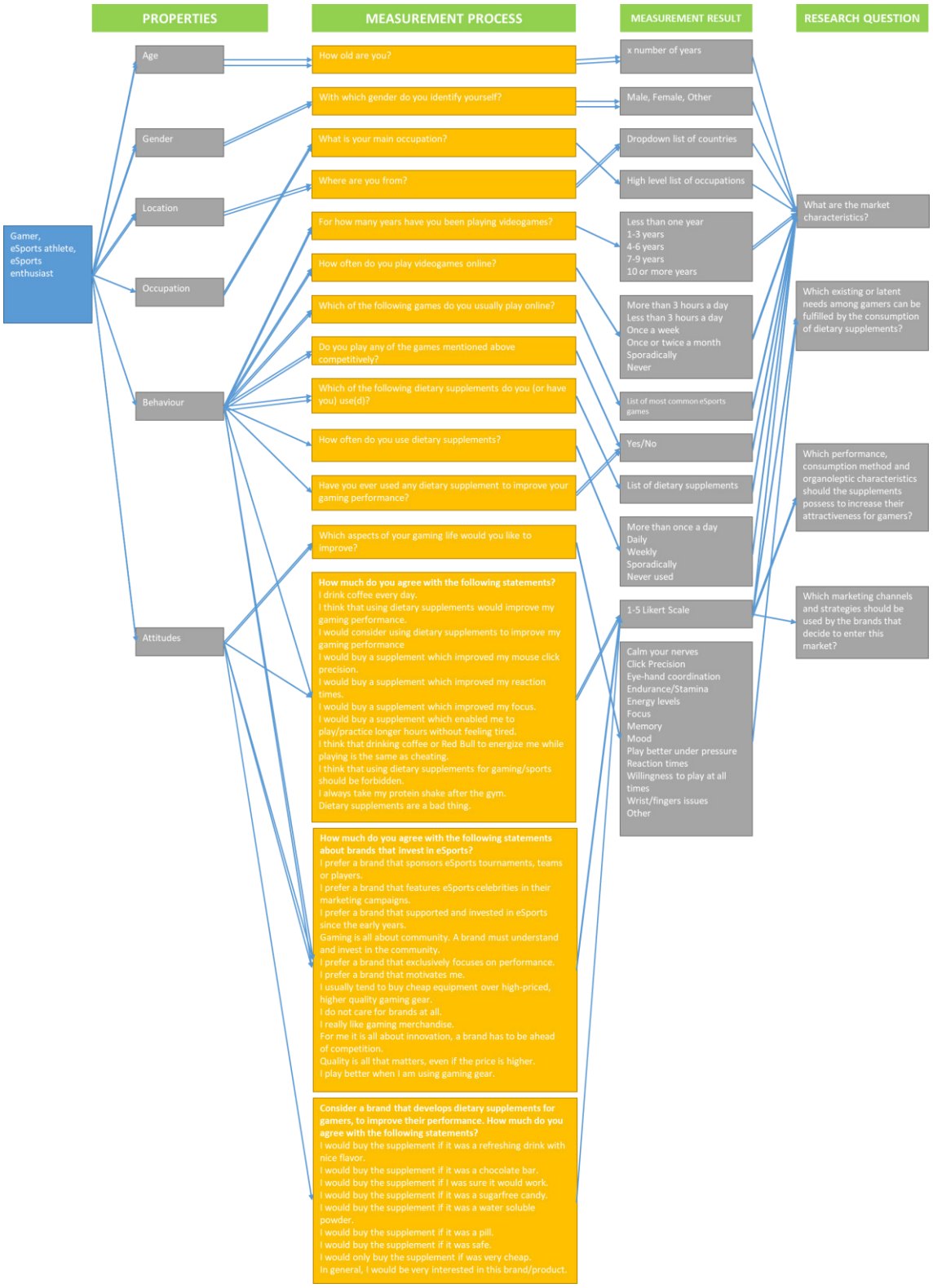
7. Appendix

7.1. Research model



7.2. Exploratory interviews

Question 1 - Please describe in a detailed manner your experience with videogames, especially with the so-called eSports.

Participant 1: In my younger years we hurried home to play whatever multiplayer we got sucked into, mostly CS & DOTA as there were eSport-scenes of that time. Sweden has always been dominating in eSports since long ago, there nobody in school that didn't try CS at least once, everyone knew what it was. We didn't have Idols like artists and actors, but players like HeatoN, Snajdan, Loda and so forth. The hours of playing has lessened of course, a girlfriend, a job. Sometimes I play single-player games as I just like to relax a bit, but sometimes, I don't play at all. Which saddens me a bit, but 1-3 times a week there's a golden moment where even your working buds are online and we play multiplayer, nowadays CSGO & DOTA 2. Just like when we were younger.

P2: I've been playing games online since around 2009. The games that I played since then were World of Warcraft, DOTA 1, League of Legends, DOTA 2 and more recently a little of Battlerite. The game I played most online was DOTA 2 and actually had a team with some friends. We played in about 3 offline competitions and 3 online (2 of them were the JoinDOTA League). Recently I stared playing games that i have in my steam library that I still haven't played. As for online games I play less, but those that I play are Battlerite, DOTA 2 and World of Warcraft. I usually play alone and now since I'm playing more games that are single-player/offline almost every time is alone. I have a friend that I play at weekends at night almost every week. The people that I used to play DOTA 2 (My old team) got hit by life, as I did.

P3: My experience with gaming begun when I was 12 years old. Back in that time i played about 4 to 5 hours a day, mainly RTS games like age of empires and red alert 2. I usually played alone but sometimes i played against some friends in local servers. I started playing online at 15 years old. I started by playing Counter-Strike 1.6 with some friends. We played together about 2 hours a day, 5 times per week. I also played Warcraft 3 with some friends at the same time. I mainly play RTS, RPG, FPS and MOBAs. I play Titan Quest, The Witcher (I complete all the 3 games, the first and the second more than once to explore different endings), CS:GO, DOTA2 (I have started playing

at 2013, and I have 1300 hours, I play at least one game per day). In the last three years I used to play more or less 2 hours per day. I usually play DOTA with friends (most of the time I have in DOTA is playing with friends, I almost don't have solo games). Apart from DOTA and CS:GO I was selected to the Beta of GWENT online, and I do at least 3 duels (more or less 30 minutes) every day. I am currently giving CDProject Red feedback on the game in order to improve it. I did not entered in any competitive gaming at all event, mainly because I don't know of any nearby event to participate. I watch almost all big competitions of DOTA like the majors, the international, ESL one, Asus DreamLeague (when I can't view the games i usually go to YouTube to at least see the highlights). I find eSports an amazing way to relax and have some fun and that is why I watch them. You can learn a lot with professional players and have a good time due to the commentators.

P4: Casual DOTA 2 playing for 2 years. Most of the time I play alone cause of schedules. At weekends with friends.

P5: I have been playing games since I got my first computer (2001). I started by playing offline games and when I got the so desired internet connection I met Counter-Strike 1.5 (and after 1.6). Still now, CS 1.6 is the game which I most enjoyed playing. I played in several amateur teams for some time, and I participated in some local tournaments. In that time the main eSports events were still low-priced when compared to what the industry was become. After playing CS 1.6 for several years, even when, CS:GO was starting to overthrown it. Then, I don't recall the year, I played DOTA for fun and the game captured my full attention (around the second International tournament). Nowadays is the only game that I practically play and I follow the community and the professional scene in a daily basis. This include watching the main and the little (little?) tournaments (Majors, Internationals, ESL One's, WCG's, Summits, FaceIt, and all the other ones). I try to play the least that I can (average of 1h/day), since I got really addicted to it, so I try to manage it the best I can. I play normally solo games, but I also sometimes with a bunch of friends which really like the game too.

P6: I've been introduced to the eSports by Counter-Strike. I started to play the game at young age and never played it since. At the beginning the competitive scene was all offline and took place at Cyber Coffee that had all the equipment need to play the game. Every Cyber Coffee had multiple

clans and inner tournaments, but there was also ClanWars between CyberCoffee's (the best of each coffee would compete). However at this time I wasn't much of a competitive player but I gained the passion to watch and follow the competitive scene. This all took time when Counter-Strike 1.5 and early 1.6 dominated the market. As the Internet got better I left completely the CyberCoffee's places and started playing only online, mainly with friends. Started to jump from a clan to another and meeting new people. As I got better I joined a top10 clan of Portugal, we would play online tournaments every month and we would practice 6 times a week, 3 hours a day. We managed to win some online tournaments and receive some attention, however due to university some members start to quit and eventually me too. Let's say that I quit playing competitive in the first year of college. I still play Counter-Strike Global Offensive now and then but just casual, however I still follow the competitive scene in Twitch, Reddit and other websites. I try to watch as many majors as I can.

P7: I have been playing for 3/4 years now (online games) from fps shooters to fantasy games. Most recently I´ve reduced the online hours but in the beginning those hours could easily reach 5/6 hours per day. The most played games are Team fortress 2 and DOTA 2 (both online) and they were played mostly alone within "worldwide" servers.

P8: I have been playing game since my 15 years old. I had played a lot of different game, i had played online and offline and usually and 100% of the time spent on video games was non-competitive. I already played FPS games like Counter-Strike or Call of Duty, Racing games like Need for speed, MX vs ATV and MOBA games like DOTA 2, being these last two games the ones that i play more and the only ones that i play online. 90% of the time i spent playing games is playing with friends, because i think that is what games are for, just to chill and have some fun with your friends.

P9: I have been playing since I'm a little child, maybe for around something around 8-10 years.

Question 2 - What makes a brand interesting for you?

Participant 1: I remember the old-school pros using the IceMat-mouse pad that was made of some kind of frosted glass, they also made the Siberia that looked neat, worked well and wasn't very expensive. I've probably wrecked 4 of those before SteelSeries bought IceMat. I still use their peripherals because they were in it from the beginning, not because there is now a large demand for it. They sponsored tournaments, our favorite players, showed themselves on the early Dreamhack-events. But sometimes you even used the Microsoft Intelli 3.0 (or was it 2.0?) mouse, because everyone know that one worked superb; hard to find though. I think peripherals should be sleek, not overly stuffed with "cool" stuff, performance for any competitive player has always been #1.

P2: Sponsoring gaming events is the main thing for a brand for me. Having professional gamers in their campaigns does not affect me. Having cool and functional merchandising is the main thing. The brand that i like more is SteelSeries. I have a mouse, a headset, a mouse pad and will eventually buy a keyboard.

P3: I usually don't evaluate brands for the teams or players they sponsor. I am personally an Asus fan guy mainly because the overall quality of their products that have high reliability and durability and because their maintenance and guarantee system. I have my laptop for 3 and a half years and it is an Asus. It gave me no problems during this entire time. When I send it to the guarantee because I want them to clean my computer they change my cooler for a new one and gave me a new charger because they said the ones I have are becoming older (I did not complain about nothing when I sent the computer but they decide to change those components anyway which is nice :D). Usually I search on the internet for user feedback on a specific headset, mouse or keyboard. I don't make a decision to buy something just because a professional player has it.

P4: I don't have special interest in brands. Most of my acquisitions are based on specs of the product and the need I have for it.

P5: Normally I pay more attention to the cool merchandising. I can give Razer as an example. And I normally when I need to buy a gaming headset, or a mouse or any other kind of these gaming

devices, I try to see what the pro's use so I can have an idea of what to buy. Following that I usually try that gaming gear and I choose the one that fits my gaming style better.

P6: Being ahead of the curve and always thinking about its community. Razer for example.

P7: I believe that the brand is the product. So what I look in, for example, ASUS is the quality/price ratio in their products. Especially for me, having top players play with top brands (equipment) doesn´t make me buy such items.

P8: The only thing that makes a brand interesting for me is the design or appearance of their products. Obviously that their products has to be comfortable.

P9: Most of all, have given evidence of having good products.

Question 3 - What kind of equipment, apparel or other merchandising branded after an eSports athlete or team do you own? What gaming equipment (keyboard, mouse, mouse pad, etc.) in general do you own? Do you believe these give you a competitive edge when compared with non-gaming gear?

Participant 1: SteelSeries & yes. Not gonna use a trackball or a small claw-grip razor-mouse thing am I?

P2: I have a mouse pad of Word of Warcraft. Merchandising branded after an eSports athlete or team does not give any competitive edge, but it's obvious that gaming gear will offer a competitive edge over non-gaming gear.

P3: I played with the keyboard of my laptop and my mouse is a Krom Khanda from Nox. I also have a cobra pro-gaming headset from E-Blue. None of that equipment is expensive 25€ the headset and 30€ the mouse, my computer cost around 1200€ three and a half years ago. I don't really think mouse and keyboard makes too much of a difference although a 7.1 headset can give an important advantage on games like CS:GO where knowing the direction from which the sound

of steps came is important. The computer itself is important once playing with 25 fps is not the same as playing with 60 fps or 144 fps. Apart from Headsets (in some games) and computer performance, and don't believe the rest of the equipment matter that much.

P4: Nothing, My headset is cheap just need a mic, the keyboard is a standard one and my mouse is gaming but because it come free when I bought my graphics card. I believe good gear give you advantage, but only justify if you play competitive.

P5: Yes, I believe that gaming gear can enhance your gaming capacity. That's why I have a mouse and a headset from gaming brands (Razer Deathadder mouse and Sennheiser G4MEONE headset). I know that some former players from Alliance competitive DOTA team usually play with a Deathadder and G4MEONE headsets (Loda p.e.) and other athletes like former EG player Fear and Arteezy too.

P6: I mainly own Razer material, except for the Headset. And yes, gaming gear is VERY important. In counter-strike for example it's the difference of missing a shot or not (just an example).

P7: I only have an Asus' Republic of Gamers laptop. The competitive edge is within the player not the equipment (in my opinion).

P8: I never had tried gaming equipment, i only use regular equipment, but i think that gaming gear doesn't help a player be a better player. I think that a players have to play with the equipment that they are used to, being that equipment a gaming gear or not.

P9: Headset, mouse, mouse pad and keyboard.

Question 4 - Have you ever used any dietary supplement to enhance your performance or endurance while playing eSports? If yes, which? What do you think about the idea of improving your performance by using supplements?

Participant 1: It's hard to draw a line, Adderall and speed? Probably godlike, is it okay? Absolutely not. But even I used to drink Jolt to get that massive amount of caffeine to make me play better. Is caffeine fine? Sugar fine? Nicotine? Taurin? Where's the line? When it's readily available in markets perhaps?

P2: Never used. For me it destroys the goal of any kind of sport. The idea is to prove that you are better with your own skill, not with the help of supplements/drugs to enhance any bodily or intellectual characteristic.

P3: No, and I don't really know if they are as efficient as people say they are. When I want to play for real, I usually do a 15 minutes match against bots to get used to the mouse sensibility and focus my attention, nothing more. I don't really think that kind of supplements are good to our body, but again I am no expert on it because I never tried them. I drink coffee usually (3 per day minimum) so I don't really feel the coffee effect and don't know if it improves or not my performance when I have one before doing a game.

P4: I never used. Personally I think is the same as cheating. If you want eSports to be considered a competitive sport, I think supplements should be banned and controlled like doping. You should play with your natural skills, nothing artificial.

P5: No, I never have used it. I don't have any problem with that if there were some rules and regulations about it, like any other sport. Substances that will give you a clear advance among the others should be ban. Never thought of using it and I think I will never use it even if available on the market, mainly because I don't have the finance affordability.

P6: Coffee counts? If so that's it. I've heard weed is good to enhance a player's performance, but for me it's the opposite (I get lazy and sloppy), although I never tried smoking and playing at the same time.

P7: No.

P8: I never had used any kind of supplement in order to improve my performance. I don't think I need to use any supplements because I only play games for fun and not competitive. But for people that play games professionally, the use of supplements will certainly increase their performance

P9: Nope, never. I think that supplements never should be use since they give advantage, in my opinion.

Question 5 - Do you believe you (your performance) would benefit from the consumption of dietary supplements before or during a competition? Which aspects of your gaming would you like to improve using dietary supplements? What physical characteristics should these supplements have to make it easier for you to use them?

Participant 1: Yes, I've noticed myself that it works, sometimes you get into the flow merely because of the feeling what you consumed gives you. A tea that calms your nerves while you're still high on that caffeine and ginseng-soup you had earlier that makes you clearheaded. A drink is always easy to consume. Chewing stuff could be concentration-breaking as you're playing, maybe the sound it makes goes into the microphone and so on. Pills feels overkill as it starts turning to /only/ enhancing, instead of consumable foods, but maybe? I don't know.

P2: I think everyone's performance would benefit from the consumption of dietary supplements, either before or during a competition. I don't want any kind of dietary supplements. If i win is all me, nothing else, pure skill.

P3: I don't think my performance would change with dietary supplements. I think my performance changes with my mood and my willing to play. If I had to choose some aspect to improve with supplements it would be reaction time and click precision, as I believe that they are the most important in online gaming. Regarding the physical characteristics of the supplements I would prefer Liquids with some nice flavor and smell.

P4: My performance will be better for sure, but I will never take any supplement for gaming.

P5: Taking into account that games are not my primarily focus, during the day I have other priorities. What I feel is that when I got that time to play some games I don't have sometimes the stamina, reaction or focus necessary to play competitively my ranked games. So I just play normal ones so I don't go down on the ranking. Chocolate bars to improve my gaming will be a nice way to attract me on invest it, since it doesn't looks like something with the mainly goal of improve my gaming hobby.

P6: Honestly in the competitive scene the characteristics doesn't matter, a player will do anything to enhance his performance. If you think about it, there's cases of cheating in Live tournaments, if pro players go through that kind of risk just to Win, wouldn't they even use syringes? Just a thought. For me personal would be liquids and gums, if I could choose. Answering the first question, yes I believe so and I would choose to improve my stamina to play for hours and my reaction time.

P7: The only thing that a player needs is a good night rest 8+ hours.

P8: I think my performance will benefit but probably i will no notice because I don't take the games too seriously.. Probably people that play games in a competitive scene will benefit way more with this substances. If i consumed any supplement, i would be to improve my reaction times and my focus. I would prefer chocolate bars or liquids.

P9: Yes. I would like to improve my keyboard and mouse movements in certain games that require fast and precise moves.

Question 6 - Imagine a brand that produces dietary supplements exclusively dedicated to gamers and eSports athletes. Which aspects/values/insights should this brand assume and communicate to motivate you to use its products? Do you have any good example of a brand working well with gamers?

Participant 1: Non-messy, not too heavy, energizes or maybe even refreshing, as long hours could make you feel off. Something that lasts preferably instead of devoured in minutes. Dried jerky has always been a favorite, but nobody likes to hear you eat things over the voice-application.

Perhaps a part of the profit from buying it goes to tournaments, or even small local tournaments, promoting events for youths to get out in the world. Fatal1ty made food for gamers, that was ridiculous!

P2: Not applicable to me since i would not consume any.

P3: When I think about a successful brand advertising the first name that comes to my mind is Coca-Cola. Regarding values, the brand should transmit confidence, hard work, never give up spirit even though everything goes wrong. As a summary, the brand should transmit the idea that nothing is impossible if you have dedication in your heart.

P4: Nothing.

P5: For me the brand that understands the game community and communicates closely to it will be very successful near its players. And obviously having a closer relationship with the professional players will have a brutal impact on the community, like any other sport.

P6 Mainly two things: It's healthy and it works!

P7: I would only consider such product if the flavor/price ratio was something great in comparison with other supplements.

P8: I don't know any brand only working eSports but I think the aspect they should invest more is on reaction times, stamina and focus capabilities.

P9: They should look into making dietary supplements that won't harm gamers in any way.

7.3. Questionnaire

Dear gamer,

Sharing your passion for gaming and eSports, we are glad to invite you to participate in our research, giving you the chance of winning a 50 Euro (43 GBP) voucher at Amazon.co.uk to buy

your favorite gaming gear*! Your experience and expertise in eSports is very valuable to us and your input highly appreciated. This survey should not take more than 5-7 minutes to fill.

This research is being conducted as part of a Master's Thesis in the University of Minho, in Portugal. eSports: the new age of dietary supplements aims to assess the use of dietary supplements among gamers as well as your beliefs, desires and goals within the electronic sports you play. Please be certain that your participation is voluntary and you are not, in any way, obliged or pressed to answer this survey.

Also, note that your participation is absolutely confidential. Please be as honest and straightforward in your answers as possible. The more and better information you provide, the better and more exciting the future of gaming might become!

*The raffle will take place on July 1st 2017, through random.org. To enter the competition, you must fully complete this survey and provide your email address (the voucher will be sent by email, please make sure to indicate a correct email address). Questionnaires clearly answered randomly will be excluded from the draft.

1. Which of the following devices do you use to play videogames?
    a. Personal Computer
    b. Gaming Console
    c. Mobile/handheld device
    d. None of the above
    e. Other
2. For how many years have you been playing videogames?
    a. Less than one year
    b. 1-3 years
    c. 4-6 years
    d. 7-9 years
    e. 10 or more years
3. During the last year, how often do you play videogames online?
    a. More than 3 hours a day
    b. Less than 3 hours a day
    c. Once a week
    d. Once or twice a month
    e. Sporadically
    f. Never
4. When you think about gaming, what brand comes to mind?
5. Which of the following games do you usually play online?
    a. ARMA
    b. Battlefield
    c. CS:GO
    d. DOTA 2

e. FIFA 201x
f. LoL
g. Hearthstone
h. Heroes of the Storm
i. Overwatch
j. Rocket League
k. Smite
l. Starcraft
m. Street Fighter
n. Team Fortress 2
o. World of Tanks
p. Other

6. Do you play any of the games mentioned above competitively?
    a. Yes
    b. No
7. How much do you agree with the following statements about brands that invest in eSports? *(Likert 1-5 scale)*
    a. I prefer a brand that sponsors eSports tournaments, teams or players.
    b. I prefer a brand that features eSports celebrities in their marketing campaigns.
    c. I prefer a brand that supported and invested in eSports since the early years.
    d. Gaming is all about community. A brand must understand and invest in the community.
    e. I prefer a brand that exclusively focuses on performance.
    f. I prefer a brand that motivates me.
    g. I usually tend to buy cheap equipment over high-priced, higher quality gaming gear.
    h. I do not care for brands at all.
    i. I really like gaming merchandise.
    j. For me it is all about innovation, a brand has to be ahead of competition.
    k. Quality is all that matters, even if the price is higher.
    l. I play better when I am using gaming gear.

A few questions about dietary supplements. A dietary supplement is any substance consumed aiming to improve any bodily or intellectual characteristic. Consider as examples of dietary supplements vitamins, caffeine (present in coffee, for example), taurine (present in Red Bull, for example), protein, caffeine or memory enhancers.

8. How often do you use dietary supplements?
    a. More than once a day
    b. Daily
    c. Weekly
    d. Sporadically
    e. Never used
9. Have you ever used any dietary supplement to improve your gaming performance?

a. Yes
b. No

10. Which of the following dietary supplements do you (or have you) use(d)?
    a. Aloe Vera
    b. Anab. Steroids
    c. BCAAs
    d. Caffeine
    e. Calcium
    f. Creatine
    g. Echinacea
    h. Fish oils
    i. Gingko
    j. Ginseng
    k. Glucosamine
    l. Green Tea
    m. Iron
    n. L-Carnitine
    o. Magnesium
    p. Niacin
    q. Omega-3
    r. Probiotics
    s. Protein
    t. Spirulina
    u. Vitamins
    v. Taurine
    w. Thiamin
    x. None of the above
    y. Other
11. Which aspects of your gaming life would you like to improve?
    a. Calm your nerves
    b. Click Precision
    c. Eye-hand coordination
    d. Endurance/Stamina
    e. Energy levels
    f. Focus
    g. Memory
    h. Mood
    i. Play better under pressure
    j. Reaction times
    k. Willingness to play
    l. Wrist/fingers issues
    m. None of the above
    n. Other

12. How much do you agree with the following statements? *(Likert 1-5 scale)*
    a. I drink coffee every day.
    b. I think that using dietary supplements would improve my gaming performance.
    c. I would buy a supplement which improved my mouse click precision.
    d. I would buy a supplement which improved my reaction times.
    e. I would buy a supplement which improved my focus.
    f. I would buy a supplement which enabled me to play/practice longer hours without feeling tired.
    g. I would consider using dietary supplements to improve my gaming performance.
    h. I think that drinking coffee or Red Bull to energize me while playing is the same as cheating.
    i. I think that using dietary supplements for gaming/sports should be forbidden.
    j. I always take my protein shake after the gym.
    k. Dietary supplements are a bad thing.
13. Consider a brand that develops dietary supplements for gamers, to improve their performance. How much do you agree with the following statements? *(Likert 1-5 scale)*
    a. I would buy the supplement if it was a refreshing drink with nice flavor.
    b. I would buy the supplement if it was a chocolate bar.
    c. I would buy the supplement if I was sure it would work.
    d. I would buy the supplement if it was a sugarfree candy.
    e. I would buy the supplement if it was a water soluble powder.
    f. I would buy the supplement if it was a pill.
    g. I would buy the supplement if it was safe.
    h. I would only buy the supplement if was very cheap.

A few questions about yourself... Here, we will ask you a few questions about yourself. Do not worry, everything you choose is anonymous and will be treated with strict confidentiality.

14. With which gender do you identify yourself?
15. How old are you?
16. Where are you from?
17. What is your highest level of education?
    a. Primary education
    b. Secondary education
    c. Bachelor's degree
    d. Master's degree
    e. Doctorate's degree
18. What is your main occupation?
    a. Retail & Wholesale
    b. Transport
    c. Business services
    d. Manufacturing, construction or agriculture
    e. Hospitality, catering or leisure services
    f. Health or Social care

g. Public sector or education
h. Student
i. Unemployed

19. If you want to have the chance of winning a 50 Euro + 10 Euro Amazon voucher, please indicate your email address. If you are the lucky winner, you will be contacted through this email address.

You are 5 stars! Thank you so very much for your collaboration.

7.4. SPSS Outputs

7.4.1. Gender associations

Gender differences between preference for gaming merchandise:

Mann-Whitney Test

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Statements_brands_h	Male	135	73.69	9947.50
	Female	16	95.53	1528.50
	Total	151		

Test Statistics[a]

	Statements_brands_h
Mann-Whitney U	767.500
Wilcoxon W	9947.500
Z	-1.971
Asymp. Sig. (2-tailed)	.049

a. Grouping Variable: Gender

Gender association with desire to play better under pressure:

Aspects_to_improve_i * Gender Crosstabulation

Count

		Gender		Total
		Male	Female	
Aspects_to_improve_i	No	86	5	91
	Yes	51	11	62
Total		137	16	153

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.907[a]	1	.015		
Continuity Correction[b]	4.672	1	.031		
Likelihood Ratio	5.817	1	.016		
Fisher's Exact Test				.028	.016
Linear-by-Linear Association	5.868	1	.015		
N of Valid Cases	153				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.48.

b. Computed only for a 2x2 table

Gender differences between preference for dietary supplements as sugar free candy:

Mann-Whitney Test

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Statements_buying_d	Male	137	79.69	10918.00
	Female	16	53.94	863.00
	Total	153		

Test Statistics[a]

	Statements_buying_d
Mann-Whitney U	727.000
Wilcoxon W	863.000
Z	-2.291
Asymp. Sig. (2-tailed)	.022

a. Grouping Variable: Gender

7.4.2. Age associations

Differences between the age groups and the preference for brands that sponsor eSports tournaments, teams or players.

Kruskal-Wallis Test

Ranks

	Cluster	N	Mean Rank
Statements_brands_a	14-17	24	90.25
	18-21	54	68.33
	22-25	42	81.37
	26-30	24	62.77
	31-35	7	99.43
	Total	151	

Test Statistics[a,b]

	Statements_brands_a
Chi-Square	10.104
df	4
Asymp. Sig.	.039

a. Kruskal Wallis Test

b. Grouping Variable: Cluster

Differences between the age groups and the preference for brands which main characteristic is the being innovative.

Kruskal-Wallis Test

Ranks

	Cluster	N	Mean Rank
Statements_brands_i	14-17	24	92.65
	18-21	54	73.68
	22-25	42	73.99
	26-30	24	59.10
	31-35	7	106.86
	Total	151	

Test Statistics[a,b]

	Statements_brands_i
Chi-Square	12.455
df	4
Asymp. Sig.	.014

a. Kruskal Wallis Test

b. Grouping Variable: Cluster

Associations between age groups and the consumption of Aloe Vera supplements.

DS_Aloe_Vera * Cluster

Crosstab

			Cluster					Total
			14-17	18-21	22-25	26-30	31-35	
DS_Aloe_Vera	No	Count	20	53	43	24	6	146
		% within DS_Aloe_Vera	13.7%	36.3%	29.5%	16.4%	4.1%	100.0%
	Yes	Count	4	2	0	0	1	7
		% within DS_Aloe_Vera	57.1%	28.6%	0.0%	0.0%	14.3%	100.0%
Total		Count	24	55	43	24	7	153
		% within DS_Aloe_Vera	15.7%	35.9%	28.1%	15.7%	4.6%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.872[a]	4	.012
Likelihood Ratio	12.306	4	.015
Linear-by-Linear Association	3.278	1	.070
N of Valid Cases	153		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .32.

Associations between age groups and the consumption of protein supplements.

DS_Protein * Cluster

Crosstab

			Cluster					Total
			14-17	18-21	22-25	26-30	31-35	
DS_Protein	No	Count	17	51	30	22	7	127
		% within DS_Protein	13.4%	40.2%	23.6%	17.3%	5.5%	100.0%
	Yes	Count	7	4	13	2	0	26
		% within DS_Protein	26.9%	15.4%	50.0%	7.7%	0.0%	100.0%
Total		Count	24	55	43	24	7	153
		% within DS_Protein	15.7%	35.9%	28.1%	15.7%	4.6%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.258[a]	4	.007
Likelihood Ratio	15.354	4	.004
Linear-by-Linear Association	.986	1	.321
N of Valid Cases	153		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 1.19.

Associations between the age groups and the desire to improve the “willingness to play at all times”.

Aspects_to_improve_k * Cluster

Crosstab

			Cluster					Total
			14-17	18-21	22-25	26-30	31-35	
Aspects_to_improve_k	No	Count	18	54	38	22	6	138
		% within Aspects_to_improve_k	13.0%	39.1%	27.5%	15.9%	4.3%	100.0%
	Yes	Count	6	1	5	2	1	15
		% within Aspects_to_improve_k	40.0%	6.7%	33.3%	13.3%	6.7%	100.0%
Total		Count	24	55	43	24	7	153
		% within Aspects_to_improve_k	15.7%	35.9%	28.1%	15.7%	4.6%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.613[a]	4	.031
Likelihood Ratio	10.740	4	.030
Linear-by-Linear Association	.442	1	.506
N of Valid Cases	153		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .69.

Associations between the age groups and the desire to improve “wrist/finger issues”.

Aspects_to_improve_l * Cluster

Crosstab

			Cluster					Total
			14-17	18-21	22-25	26-30	31-35	
Aspects_to_improve_l	No	Count	23	54	35	21	7	140
		% within Aspects_to_improve_l	16.4%	38.6%	25.0%	15.0%	5.0%	100.0%
	Yes	Count	1	1	8	3	0	13
		% within Aspects_to_improve_l	7.7%	7.7%	61.5%	23.1%	0.0%	100.0%
Total		Count	24	55	43	24	7	153
		% within Aspects_to_improve_l	15.7%	35.9%	28.1%	15.7%	4.6%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.529[a]	4	.032
Likelihood Ratio	11.252	4	.024
Linear-by-Linear Association	2.222	1	.136
N of Valid Cases	153		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .59.

Associations between the age groups and the consumption of coffee.

Crosstab

			Cluster					Total
			14-17	18-21	22-25	26-30	31-35	
Statements_supplements_a	1.00	Count	10	16	13	10	1	50
		% within Statements_supplements_a	20.0%	32.0%	26.0%	20.0%	2.0%	100.0%
	2.00	Count	0	10	2	0	0	12
		% within Statements_supplements_a	0.0%	83.3%	16.7%	0.0%	0.0%	100.0%
	3.00	Count	1	4	3	1	3	12
		% within Statements_supplements_a	8.3%	33.3%	25.0%	8.3%	25.0%	100.0%
	4.00	Count	2	11	8	3	2	26
		% within Statements_supplements_a	7.7%	42.3%	30.8%	11.5%	7.7%	100.0%
	5.00	Count	11	14	17	10	1	53
		% within Statements_supplements_a	20.8%	26.4%	32.1%	18.9%	1.9%	100.0%
Total		Count	24	55	43	24	7	153
		% within Statements_supplements_a	15.7%	35.9%	28.1%	15.7%	4.6%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	32.347[a]	16	.009
Likelihood Ratio	29.761	16	.019
Linear-by-Linear Association	.213	1	.644
N of Valid Cases	153		

a. 15 cells (60.0%) have expected count less than 5. The minimum expected count is .55.

Associations between the age groups and the likelihood of buying a supplement to improve focus.

Crosstab

			Cluster					Total
			14-17	18-21	22-25	26-30	31-35	
Statements_supplements_e	1.00	Count	5	26	13	9	2	55
		% within Statements_supplements_e	9.1%	47.3%	23.6%	16.4%	3.6%	100.0%
	2.00	Count	2	8	10	5	0	25
		% within Statements_supplements_e	8.0%	32.0%	40.0%	20.0%	0.0%	100.0%
	3.00	Count	6	5	8	6	0	25
		% within Statements_supplements_e	24.0%	20.0%	32.0%	24.0%	0.0%	100.0%
	4.00	Count	6	10	9	2	5	32
		% within Statements_supplements_e	18.8%	31.3%	28.1%	6.3%	15.6%	100.0%
	5.00	Count	5	6	3	2	0	16
		% within Statements_supplements_e	31.3%	37.5%	18.8%	12.5%	0.0%	100.0%
Total		Count	24	55	43	24	7	153
		% within Statements_supplements_e	15.7%	35.9%	28.1%	15.7%	4.6%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	27.560[a]	16	.036
Likelihood Ratio	27.498	16	.036
Linear-by-Linear Association	.647	1	.421
N of Valid Cases	153		

a. 12 cells (48.0%) have expected count less than 5. The minimum expected count is .73.

7.4.3. Occupation associations

Associations between participant's occupation and the devices used to play videogames.

Devices * Occupation Crosstabulation

			Occupation								
			Retail & Wholesale	Transport	Business services	Manufacturing, construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	Total
Devices	Personal Computer	Count	2	0	5	0	0	1	45	6	59
		% within Devices	3.4%	0.0%	8.5%	0.0%	0.0%	1.7%	76.3%	10.2%	100.0%
	Gaming Console	Count	0	0	4	0	0	0	4	0	8
		% within Devices	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	50.0%	0.0%	100.0%
	Mobile+Console +PC	Count	1	0	7	2	1	0	18	3	32
		% within Devices	3.1%	0.0%	21.9%	6.3%	3.1%	0.0%	56.3%	9.4%	100.0%
	PC+Console	Count	0	0	9	2	0	0	13	0	24
		% within Devices	0.0%	0.0%	37.5%	8.3%	0.0%	0.0%	54.2%	0.0%	100.0%
	PC+Mobile	Count	0	0	2	0	1	1	19	2	25
		% within Devices	0.0%	0.0%	8.0%	0.0%	4.0%	4.0%	76.0%	8.0%	100.0%
	Console+Mobile	Count	0	1	1	0	0	0	1	0	3
		% within Devices	0.0%	33.3%	33.3%	0.0%	0.0%	0.0%	33.3%	0.0%	100.0%
	Mobile	Count	0	0	0	0	0	0	1	0	1
		% within Devices	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	999.00	Count	0	0	0	0	0	0	0	1	1
		% within Devices	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Total		Count	3	1	28	4	2	2	101	12	153
		% within Devices	2.0%	0.7%	18.3%	2.6%	1.3%	1.3%	66.0%	7.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	97.841[a]	49	.000
Likelihood Ratio	53.536	49	.304
Linear-by-Linear Association	.875	1	.350
N of Valid Cases	153		

a. 57 cells (89.1%) have expected count less than 5. The minimum expected count is .01.

Associations between participant's occupation and the number of years playing videogames.

Kruskal-Wallis Test

Ranks

	Occupation	N	Mean Rank
Years_playing	Retail & Wholesale	3	100.00
	Transport	1	100.00
	Business services	28	94.25
	Manufacturing, construction or agriculture	4	100.00
	Health or Social care	2	34.50
	Public sector or education	2	100.00
	Student	101	70.97
	Unemployed	12	75.46
	Total	153	

Test Statistics[a,b]

	Years_playing
Chi-Square	16.317
df	7
Asymp. Sig.	.022

a. Kruskal Wallis Test

b. Grouping Variable: Occupation

Associations between participant's occupation and the videogames played:

- FIFA ($\chi 2$ (7) = 16.04, $p < .05$)

Game_FIFA * Occupation

Crosstab

			Occupation								
			Retail & Wholesale	Transport	Business services	Manufacturing, construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	Total
Game_FIFA	No	Count	2	0	18	3	2	2	87	12	126
		% within Game_FIFA	1.6%	0.0%	14.3%	2.4%	1.6%	1.6%	69.0%	9.5%	100.0%
	Yes	Count	1	1	10	1	0	0	14	0	27
		% within Game_FIFA	3.7%	3.7%	37.0%	3.7%	0.0%	0.0%	51.9%	0.0%	100.0%
Total		Count	3	1	28	4	2	2	101	12	153
		% within Game_FIFA	2.0%	0.7%	18.3%	2.6%	1.3%	1.3%	66.0%	7.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.037[a]	7	.025
Likelihood Ratio	16.487	7	.021
Linear-by-Linear Association	11.441	1	.001
N of Valid Cases	153		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .18.

- League of Legends ($\chi 2$ (7) = 16.55, $p < .05$)

Game_LoL * Occupation

Crosstab

			Occupation								
			Retail & Wholesale	Transport	Business services	Manufacturing, construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	Total
Game_LoL	No	Count	1	1	24	2	2	2	50	6	88
		% within Game_LoL	1.1%	1.1%	27.3%	2.3%	2.3%	2.3%	56.8%	6.8%	100.0%
	Yes	Count	2	0	4	2	0	0	51	6	65
		% within Game_LoL	3.1%	0.0%	6.2%	3.1%	0.0%	0.0%	78.5%	9.2%	100.0%
Total		Count	3	1	28	4	2	2	101	12	153
		% within Game_LoL	2.0%	0.7%	18.3%	2.6%	1.3%	1.3%	66.0%	7.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.545[a]	7	.021
Likelihood Ratio	19.660	7	.006
Linear-by-Linear Association	8.173	1	.004
N of Valid Cases	153		

a. 10 cells (62.5%) have expected count less than 5. The minimum expected count is .42.

Associations between participant's occupation and brand preferences:

- I prefer a brand that features eSports celebrities in their marketing campaigns" (U = 15.38, $p < .05$).

Kruskal-Wallis Test

Ranks

	Occupation	N	Mean Rank
Statements_brands_b	Retail & Wholesale	3	48.17
	Transport	1	18.50
	Business services	28	87.14
	Manufacturing, construction or agriculture	4	99.25
	Health or Social care	2	143.50
	Public sector or education	2	63.00
	Student	99	74.64
	Unemployed	12	56.17
	Total	151	

Test Statistics[a,b]

	Statements_brands_b
Chi-Square	15.384
df	7
Asymp. Sig.	.031

a. Kruskal Wallis Test

b. Grouping Variable: Occupation

- I usually tend to buy cheap equipment over high-priced, higher quality gaming gear" (U = 14.725, p < .05).

Kruskal-Wallis Test

Ranks

	Occupation	N	Mean Rank
Statements_brands_f	Retail & Wholesale	3	94.83
	Transport	1	32.50
	Business services	28	93.23
	Manufacturing, construction or agriculture	4	102.38
	Health or Social care	2	20.50
	Public sector or education	2	106.25
	Student	99	69.63
	Unemployed	12	82.71
	Total	151	

Test Statistics[a,b]

	Statements_brands_f
Chi-Square	14.725
df	7
Asymp. Sig.	.040

a. Kruskal Wallis Test

b. Grouping Variable: Occupation

- For me it is all about innovation, a brand has to be ahead of competition" (U = 14.331, p< .05).

Kruskal-Wallis Test

Ranks

	Occupation	N	Mean Rank
Statements_brands_i	Retail & Wholesale	3	136.00
	Transport	1	136.00
	Business services	28	77.96
	Manufacturing, construction or agriculture	4	64.25
	Health or Social care	2	136.00
	Public sector or education	2	82.25
	Student	99	72.89
	Unemployed	12	69.96
	Total	151	

Test Statistics[a,b]

	Statements_brands_i
Chi-Square	14.331
df	7
Asymp. Sig.	.046

a. Kruskal Wallis Test

b. Grouping Variable: Occupation

Associations between the participant's occupation and the consumption of dietary supplements.

- Probiotics ($\chi 2$ (7) = 37.495, p < .001)

DS_Probiotics * Occupation

Crosstab

			Occupation								Total
			Retail & Wholesale	Transport	Business services	Manufacturing, construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	
DS_Probiotics	No	Count	3	1	28	3	2	2	101	12	152
		% within DS_Probiotics	2.0%	0.7%	18.4%	2.0%	1.3%	1.3%	66.4%	7.9%	100.0%
	Yes	Count	0	0	0	1	0	0	0	0	1
		% within DS_Probiotics	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Total		Count	3	1	28	4	2	2	101	12	153
		% within DS_Probiotics	2.0%	0.7%	18.3%	2.6%	1.3%	1.3%	66.0%	7.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37.495[a]	7	.000
Likelihood Ratio	7.556	7	.373
Linear-by-Linear Association	1.618	1	.203
N of Valid Cases	153		

a. 13 cells (81.3%) have expected count less than 5. The minimum expected count is .01.

- Protein ($\chi 2$ (7) = 14.147, p < .05)

DS_Protein * Occupation

Crosstab

			Occupation								Total
			Retail & Wholesale	Transport	Business services	Manufacturing, construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	
DS_Protein	No	Count	2	1	17	4	2	2	89	10	127
		% within DS_Protein	1.6%	0.8%	13.4%	3.1%	1.6%	1.6%	70.1%	7.9%	100.0%
	Yes	Count	1	0	11	0	0	0	12	2	26
		% within DS_Protein	3.8%	0.0%	42.3%	0.0%	0.0%	0.0%	46.2%	7.7%	100.0%
Total		Count	3	1	28	4	2	2	101	12	153
		% within DS_Protein	2.0%	0.7%	18.3%	2.6%	1.3%	1.3%	66.0%	7.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.147[a]	7	.049
Likelihood Ratio	13.677	7	.057
Linear-by-Linear Association	8.251	1	.004
N of Valid Cases	153		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .17.

- Vitamins ($\chi 2$ (7) = 19.977, p < .01)

DS_Vitamins * Occupation

Crosstab

			Occupation								Total
			Retail & Wholesale	Transport	Business services	Manufacturing, construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	
DS_Vitamins	No	Count	1	0	21	2	2	2	91	10	129
		% within DS_Vitamins	0.8%	0.0%	16.3%	1.6%	1.6%	1.6%	70.5%	7.8%	100.0%
	Yes	Count	2	1	7	2	0	0	10	2	24
		% within DS_Vitamins	8.3%	4.2%	29.2%	8.3%	0.0%	0.0%	41.7%	8.3%	100.0%
Total		Count	3	1	28	4	2	2	101	12	153
		% within DS_Vitamins	2.0%	0.7%	18.3%	2.6%	1.3%	1.3%	66.0%	7.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.977[a]	7	.006
Likelihood Ratio	16.041	7	.025
Linear-by-Linear Association	10.857	1	.001
N of Valid Cases	153		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .16.

Differences between the participant's occupation and the belief that "dietary supplements are a bad thing" (U = 15.43, p < .05).

Kruskal-Wallis Test

Ranks

	Occupation	N	Mean Rank
Statements_supplements_k	Retail & Wholesale	3	112.33
	Transport	1	101.00
	Business services	28	94.45
	Manufacturing, construction or agriculture	4	42.50
	Health or Social care	2	92.50
	Public sector or education	2	118.00
	Student	101	70.29
	Unemployed	12	84.00
	Total	153	

Test Statistics[a,b]

	Statements_supplements_k
Chi-Square	15.430
df	7
Asymp. Sig.	.031

a. Kruskal Wallis Test

b. Grouping Variable: Occupation

Associations between the participant's occupation and the likelihood of buying a dietary supplement if "I was sure it would work" ($\chi 2$ (35) = 64.95, p <. 01).

			Retail & Wholesale	Transport	Business services	construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	Total
Statements_buying_c	.00	Count	0	0	0	0	0	1	1	0	2
		% within Statements_buying_c	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	100.0%
	1.00	Count	1	0	5	1	0	0	17	2	26
		% within Statements_buying_c	3.8%	0.0%	19.2%	3.8%	0.0%	0.0%	65.4%	7.7%	100.0%
	2.00	Count	0	1	1	1	0	1	8	1	13
		% within Statements_buying_c	0.0%	7.7%	7.7%	7.7%	0.0%	7.7%	61.5%	7.7%	100.0%
	3.00	Count	1	0	8	1	0	0	38	3	51
		% within Statements_buying_c	2.0%	0.0%	15.7%	2.0%	0.0%	0.0%	74.5%	5.9%	100.0%
	4.00	Count	0	0	9	0	1	0	21	4	35
		% within Statements_buying_c	0.0%	0.0%	25.7%	0.0%	2.9%	0.0%	60.0%	11.4%	100.0%
	5.00	Count	1	0	5	1	1	0	16	2	26
		% within Statements_buying_c	3.8%	0.0%	19.2%	3.8%	3.8%	0.0%	61.5%	7.7%	100.0%
Total		Count	3	1	28	4	2	2	101	12	153
		% within Statements_buying_c	2.0%	0.7%	18.3%	2.6%	1.3%	1.3%	66.0%	7.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	64.951[a]	35	.002
Likelihood Ratio	30.254	35	.697
Linear-by-Linear Association	.080	1	.777
N of Valid Cases	153		

a. 41 cells (85.4%) have expected count less than 5. The

7.4.4. Education associations

Differences between level of education and number of years playing videogames.

Kruskal-Wallis Test

Ranks

	Education	N	Mean Rank
Years_playing	Primary	3	78.17
	Secondary	79	68.35
	Bachelor's	48	85.60
	Master's	23	88.61
	Total	153	

Test Statistics[a,b]

	Years_playing
Chi-Square	9.795
df	3
Asymp. Sig.	.020

a. Kruskal Wallis Test

b. Grouping Variable: Education

Differences between level of education and the frequency of dietary supplements consumption.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Frequency_dietary_supplements	153	4.1176	1.28217	.00	5.00
Education	153	2.5948	.76466	1.00	4.00

Kruskal-Wallis Test

Ranks

	Education	N	Mean Rank
Frequency_dietary_supplements	Primary	3	78.83
	Secondary	79	82.47
	Bachelor's	48	79.69
	Master's	23	52.35
	Total	153	

Test Statistics[a,b]

	Frequency_dietary_supplements
Chi-Square	10.645
df	3
Asymp. Sig.	.014

a. Kruskal Wallis Test

b. Grouping Variable: Education

Differences between level of education and consumption of caffeine.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
DS_Caffeine	153	.3791	.48675	.00	1.00
Education	153	2.5948	.76466	1.00	4.00

Kruskal-Wallis Test

Ranks

	Education	N	Mean Rank
DS_Caffeine	Primary	3	99.00
	Secondary	79	68.34
	Bachelor's	48	78.28
	Master's	23	101.22
	Total	153	

Test Statistics[a,b]

	DS_Caffeine
Chi-Square	15.110
df	3
Asymp. Sig.	.002

a. Kruskal Wallis Test

b. Grouping Variable: Education

Differences between level of education and consumption of spirulina.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
DS_Spirulina	153	.0261	.16009	.00	1.00
Education	153	2.5948	.76466	1.00	4.00

Kruskal-Wallis Test

Ranks

	Education	N	Mean Rank
DS_Spirulina	Primary	3	75.00
	Secondary	79	75.00
	Bachelor's	48	81.38
	Master's	23	75.00
	Total	153	

Test Statistics[a,b]

	DS_Spirulina
Chi-Square	8.926
df	3
Asymp. Sig.	.030

a. Kruskal Wallis Test

b. Grouping Variable: Education

Differences between level of education and the consumption behavior of coffee.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Statements_supplements_a	153	3.1307	1.71561	1.00	5.00
Education	153	2.5948	.76466	1.00	4.00

Kruskal-Wallis Test

Ranks

	Education	N	Mean Rank
Statements_supplements_a	Primary	3	35.83
	Secondary	79	67.63
	Bachelor's	48	86.11
	Master's	23	95.52
	Total	153	

Test Statistics[a,b]

	Statements_supplements_a
Chi-Square	13.260
df	3
Asymp. Sig.	.004

a. Kruskal Wallis Test

b. Grouping Variable: Education

7.4.5. Brand awareness & brand preferences

Associations between brand top-of-mind and main occupation:

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	297.948[a]	224	.001
Likelihood Ratio	114.166	224	1.000
Linear-by-Linear Association	.000	1	.994
N of Valid Cases	153		

a. 257 cells (97.3%) have expected count less than 5. The minimum expected count is .01.

Gaming_brand * Occupation Crosstabulation

			Occupation								
			Retail & Wholesale	Transport	Business services	Manufacturing, construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	Total
Gaming_brand	.00	Count	1	0	1	0	0	0	7	2	11
		% within Gaming_brand	9.1%	0.0%	9.1%	0.0%	0.0%	0.0%	63.6%	18.2%	100.0%
	Alienware	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Asus	Count	0	0	3	0	0	1	4	0	8
		% within Gaming_brand	0.0%	0.0%	37.5%	0.0%	0.0%	12.5%	50.0%	0.0%	100.0%
	Benq	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Blizzard	Count	0	0	1	0	0	0	4	2	7
		% within Gaming_brand	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	57.1%	28.6%	100.0%
	Call of Duty	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	CD Projekt	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	CS:GO	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Crystal dynamics	Count	1	0	0	0	0	0	0	0	1
		% within Gaming_brand	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	DICE	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	EA	Count	0	1	3	0	0	0	3	0	7
		% within Gaming_brand	0.0%	14.3%	42.9%	0.0%	0.0%	0.0%	42.9%	0.0%	100.0%
	ESL	Count	0	0	1	0	0	0	0	0	1
		% within Gaming_brand	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	fnatic	Count	0	0	0	0	1	0	0	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
	HyperX	Count	0	0	0	0	1	0	1	0	2
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	50.0%	0.0%	100.0%
	Intel	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	League of Legends	Count	0	0	0	0	0	0	5	0	5
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Monster	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	MSI	Count	0	0	0	0	0	0	3	1	4
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	75.0%	25.0%	100.0%
	Na'Vi	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Nintendo	Count	0	0	1	1	0	0	5	2	9
		% within Gaming_brand	0.0%	0.0%	11.1%	11.1%	0.0%	0.0%	55.6%	22.2%	100.0%
	nvidia	Count	0	0	0	0	0	0	2	0	2
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Razer	Count	1	0	2	2	0	1	15	1	22
		% within Gaming_brand	4.5%	0.0%	9.1%	9.1%	0.0%	4.5%	68.2%	4.5%	100.0%
	Riot	Count	0	0	1	0	0	0	6	0	7
		% within Gaming_brand	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	85.7%	0.0%	100.0%
	Roccat	Count	0	0	0	1	0	0	0	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	Rockstar Games	Count	0	0	1	0	0	0	3	0	4
		% within Gaming_brand	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	75.0%	0.0%	100.0%
	Sony	Count	0	0	1	0	0	0	5	0	6
		% within Gaming_brand	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	83.3%	0.0%	100.0%
	Playstation	Count	0	0	3	0	0	0	7	0	10
		% within Gaming_brand	0.0%	0.0%	30.0%	0.0%	0.0%	0.0%	70.0%	0.0%	100.0%
	Steam	Count	0	0	0	0	0	0	5	1	6
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	83.3%	16.7%	100.0%
	SteelSeries	Count	0	0	6	0	0	0	8	2	16
		% within Gaming_brand	0.0%	0.0%	37.5%	0.0%	0.0%	0.0%	50.0%	12.5%	100.0%
	Twitch	Count	0	0	2	0	0	0	0	0	2
		% within Gaming_brand	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	Ubisoft	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Valve	Count	0	0	2	0	0	0	7	1	10
		% within Gaming_brand	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	70.0%	10.0%	100.0%

			Occupation								
			Retail & Wholesale	Transport	Business services	Manufacturing, construction or agriculture	Health or Social care	Public sector or education	Student	Unemployed	Total
	XBox	Count	0	0	0	0	0	0	1	0	1
		% within Gaming_brand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Total		Count	3	1	28	4	2	2	101	12	153
		% within Gaming_brand	2.0%	0.7%	18.3%	2.6%	1.3%	1.3%	66.0%	7.8%	100.0%

Differences between top-of-mind brand and the importance given to the brand's investment in the gaming community:

Kruskal-Wallis Test

Ranks

	Gaming_brand	N	Mean Rank
Statements_brands_d	Alienware	1	99.50
	Asus	8	65.56
	Benq	1	38.00
	Blizzard	7	99.50
	Call of Duty	1	99.50
	CD Projekt	1	99.50
	CS:GO	1	99.50
	Crystal dynamics	1	99.50
	DICE	1	38.00
	EA	7	48.29
	ESL	1	12.50
	fnatic	1	99.50
	HyperX	2	56.00
	Intel	1	38.00
	League of Legends	5	99.50
	Monster	1	99.50
	MSI	4	62.38
	Na'Vi	1	3.50
	Nintendo	9	66.50
	nvidia	2	68.75
	Razer	22	84.36
	Riot	7	40.43
	Roccat	1	38.00
	Rockstar Games	4	84.13
	Sony	6	68.75
	Playstation	10	62.75
	Steam	6	89.25
	SteelSeries	16	84.13
	Twitch	2	99.50
	Ubisoft	1	38.00
	Valve	10	48.80
	XBox	1	12.50
	Total	142	

Test Statistics[a,b]

	Statements_brands_d
Chi-Square	46.866
df	31
Asymp. Sig.	.034

a. Kruskal Wallis Test

b. Grouping Variable: Gaming_brand

7.4.6. Associations between drivers of preference and purchasing behaviors

Associations between drivers of brand preference and the likelihood of purchasing dietary supplements:

Nonparametric Correlations

Correlations

			TOTAL_Statements_brands_final_average	Statements_supplements_g
Spearman's rho	TOTAL_Statements_brands_final_average	Correlation Coefficient	1.000	.174*
		Sig. (2-tailed)	.	.032
		N	152	152
	Statements_supplements_g	Correlation Coefficient	.174*	1.000
		Sig. (2-tailed)	.032	.
		N	152	153

*. Correlation is significant at the 0.05 level (2-tailed).

Associations between individual drivers of preference and purchasing behaviors:

- **Sponsoring eSports tournaments, teams or players with**
  - I would buy a supplement which improved my mouse click precision. (rs = .220,

p = .007)

- I would buy a supplement which improved my reaction times. (rs = .168, p = .039)
- I would buy a supplement which improved my focus. (rs = .201, p = .013)
- I would buy a supplement which enabled me to play/practice longer hours without feeling tired. (rs = .169, p = .038)
- I would consider using dietary supplements to improve my gaming performance. (rs = .161, p = .048)

			Statements_brands_a
Spearman's rho	Statements_brands_a	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	151
	Statements_supplements_a	Correlation Coefficient	.024
		Sig. (2-tailed)	.769
		N	151
	Statements_supplements_b	Correlation Coefficient	.131
		Sig. (2-tailed)	.110
		N	151
	Statements_supplements_c	Correlation Coefficient	.220**
		Sig. (2-tailed)	.007
		N	151
	Statements_supplements_d	Correlation Coefficient	.168*
		Sig. (2-tailed)	.039
		N	151
	Statements_supplements_e	Correlation Coefficient	.201*
		Sig. (2-tailed)	.013
		N	151
	Statements_supplements_f	Correlation Coefficient	.169*
		Sig. (2-tailed)	.038
		N	151
	Statements_supplements_g	Correlation Coefficient	.161*
		Sig. (2-tailed)	.048
		N	151

- **Featuring eSports celebrities in marketing campaigns with**
  - I would buy a supplement which improved my mouse click precision. (rs = .164, p = .044)
  - I would consider using dietary supplements to improve my gaming performance. (rs = .170, p = .037)

			Statements_brands_b
Spearman's rho	Statements_brands_b	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	151
	Statements_supplements_a	Correlation Coefficient	.084
		Sig. (2-tailed)	.307
		N	151
	Statements_supplements_b	Correlation Coefficient	.148
		Sig. (2-tailed)	.069
		N	151
	Statements_supplements_c	Correlation Coefficient	.164*
		Sig. (2-tailed)	.044
		N	151
	Statements_supplements_d	Correlation Coefficient	.081
		Sig. (2-tailed)	.320
		N	151
	Statements_supplements_e	Correlation Coefficient	.117
		Sig. (2-tailed)	.151
		N	151
	Statements_supplements_f	Correlation Coefficient	.137
		Sig. (2-tailed)	.093
		N	151
	Statements_supplements_g	Correlation Coefficient	.170*
		Sig. (2-tailed)	.037
		N	151

- **Understanding and investing in the gaming community with**
    - I would buy a supplement which improved my focus. (rs = .179, p = .028)
    - Dietary supplements are a bad thing. (rs = .170, p = .037)

Statements_supplements_e	Correlation Coefficient	.179*
	Sig. (2-tailed)	.028
	N	152
Statements_supplements_f	Correlation Coefficient	.117
	Sig. (2-tailed)	.152
	N	152
Statements_supplements_g	Correlation Coefficient	.130
	Sig. (2-tailed)	.110
	N	152
Statements_supplements_h	Correlation Coefficient	.153
	Sig. (2-tailed)	.060
	N	151
Statements_supplements_i	Correlation Coefficient	.140
	Sig. (2-tailed)	.087
	N	151
Statements_supplements_j	Correlation Coefficient	-.087
	Sig. (2-tailed)	.288
	N	152
Statements_supplements_k	Correlation Coefficient	.162*
	Sig. (2-tailed)	.046
	N	152

- **Exclusive focuses on performance with**
    - I would buy a supplement which improved my mouse click precision. (rs = .207, p = .013)
    - I would buy a supplement which enabled me to play/practice longer hours without feeling tired. (rs = .261, p = .050)

			Statements_brands_e
Spearman's rho	Statements_brands_e	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	149
	Statements_supplements_a	Correlation Coefficient	-.067
		Sig. (2-tailed)	.453
		N	149
	Statements_supplements_b	Correlation Coefficient	.037
		Sig. (2-tailed)	.652
		N	149
	Statements_supplements_c	Correlation Coefficient	.207*
		Sig. (2-tailed)	.011
		N	149
	Statements_supplements_d	Correlation Coefficient	.064
		Sig. (2-tailed)	.435
		N	149
	Statements_supplements_e	Correlation Coefficient	.010
		Sig. (2-tailed)	.908
		N	149
	Statements_supplements_f	Correlation Coefficient	.161
		Sig. (2-tailed)	.050
		N	149

- **Focuses on cheap prices over quality with**
  - I would buy a supplement which enabled me to play/practice longer hours without feeling tired. (rs = .231, p = .004)

	N	151
Statements_supplements_k	Correlation Coefficient	.231**
	Sig. (2-tailed)	.004
	N	151

ation is significant at the 0.01 level (2-tailed).

- **Brands are irrelevant with**
  - I would buy a supplement which enabled me to play/practice longer hours without feeling tired. (rs = .257, p = .001)

Statements_supplements_k	Correlation Coefficient	.257**
	Sig. (2-tailed)	.001
	N	153

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

- **Fondness of gaming merchandise with**
  - I would buy a supplement which improved my mouse click precision. (rs = .171, p = .036)

			Statements_brands_h
Spearman's rho	Statements_brands_h	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	151
	Statements_supplements_a	Correlation Coefficient	.045
		Sig. (2-tailed)	.581
		N	151
	Statements_supplements_b	Correlation Coefficient	.047
		Sig. (2-tailed)	.567
		N	151
	Statements_supplements_c	Correlation Coefficient	.171*
		Sig. (2-tailed)	.036
		N	151

- **Innovative and ahead of competition with**
  - I would buy a supplement which enabled me to play/practice longer hours without feeling tired. (rs = .169, p = .038)

			Statements_brands_i
Spearman's rho	Statements_brands_i	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	151
	Statements_supplements_a	Correlation Coefficient	.081
		Sig. (2-tailed)	.321
		N	151
	Statements_supplements_b	Correlation Coefficient	.051
		Sig. (2-tailed)	.532
		N	151
	Statements_supplements_c	Correlation Coefficient	.145
		Sig. (2-tailed)	.076
		N	151
	Statements_supplements_d	Correlation Coefficient	.140
		Sig. (2-tailed)	.086
		N	151
	Statements_supplements_e	Correlation Coefficient	.159
		Sig. (2-tailed)	.052
		N	151
	Statements_supplements_f	Correlation Coefficient	.169*
		Sig. (2-tailed)	.038
		N	151

- **Gaming gear improves my performance with**
  - I think that using dietary supplements would improve my gaming performance. (rs = .235, p = .004)
  - I would consider using dietary supplements to improve my gaming performance. (rs = .191, p = .019)

			Statements_brands_k
Spearman's rho	Statements_brands_k	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	151
	Statements_supplements_a	Correlation Coefficient	.011
		Sig. (2-tailed)	.893
		N	151
	Statements_supplements_b	Correlation Coefficient	.235**
		Sig. (2-tailed)	.004
		N	151
	Statements_supplements_c	Correlation Coefficient	.154
		Sig. (2-tailed)	.059
		N	151
	Statements_supplements_d	Correlation Coefficient	.088
		Sig. (2-tailed)	.285
		N	151
	Statements_supplements_e	Correlation Coefficient	.134
		Sig. (2-tailed)	.102
		N	151
	Statements_supplements_f	Correlation Coefficient	.076
		Sig. (2-tailed)	.353
		N	151
	Statements_supplements_g	Correlation Coefficient	.191*
		Sig. (2-tailed)	.019
		N	151

7.4.7. Game genre preferences

	31-35	7	74.00
	Total	153	
Games_gender_6	14-17	24	76.19
	18-21	55	78.56
	22-25	43	73.00
	26-30	24	76.19
	31-35	7	94.86
	Total	153	

Test Statistics[a,b]

	Games_gender_1	Games_gender_2	Games_gender_3	Games_gender_4	Games_gender_5	Games_gender_6
Chi-Square	5.360	8.210	4.587	1.287	5.875	10.573
df	4	4	4	4	4	4
Asymp. Sig.	.252	.084	.332	.863	.209	.032

a. Kruskal Wallis Test

b. Grouping Variable: Cluster

7.5. NINF Lan Party invitation email

És louco por eSports? Sim, afinal participaste na XX LanParty NINF!

Queres fazer parte do desenvolvimento dos eSports como modalidade desportiva, como indústria e como temática académica e ainda queres ganhar dois vouchers de 50€ e 10€ na Amazon?

O meu nome é José Rodrigues e preciso da tua ajuda! Estou à procura de atletas e fãs eSports para responderem a um questionário de cinco minutos para a minha tese de mestrado que tem o objetivo de avaliar a utilização de suplementos alimentares entre jogadores assim como as vossas crenças, desejos e objetivos em relação aos eSports que praticam.

Por participares na XX LanParty NINF podes ganhar não um, mas os dois vales! Para isso, basta responderes ao questionário e podes comprar o tal mouse pad ou headset novo que tanto querias.

Vou sortear o vale de 10€ entre os participantes da XX LanParty NINF no dia 12 de maio de 2017 e no dia 1 de julho de 2017 o segundo vale (50€) será sorteado. O(s) vencedor(es) será(ão) contactado(s) por email, por isso, por favor, não te esqueças de colocar o teu email no fim do questionário caso te queiras habilitar a ganhar os vales.

Se não quiseres partilhar o teu email, infelizmente não temos como te contactar, mas podes sempre dar a tua opinião e ajudar-me com a minha tese. Todas as participações serão tratadas com total confidencialidade! Posso contar contigo?

LINK EXCLUSIVO XX LAN PARTY NINF: https://joserodrigues2.typeform.com/to/VGE9oL

*Dois vouchers (50€ e 10€) serão sorteados entre as participações válidas. Por favor, toma em atenção as regras da participação no sorteio, toda a informação no link.

Muito obrigado! gl hf!

José Rodrigues,
Universidade do Minho