Assessing Socioeconomic Issues of the Brazilian e-Sports Scene

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Figure 1: Only about a quarter of players have more than 16 hours per week to play on a regular, daily basis. Moreover, despite the education degree and broadband internet access at her home, the typical Brazilian player invests less than U\$ 150 per year in gaming. This limited budget inhibits players from investing in consoles, computers, titles, and especially accessories. Such affirmations are supported by analyzes carried out on data collected from an online opinion survey.

ABSTRACT

E-Sports comprise a new modality of competition which recently got major highlights in Brazil due to the popularization of electronic games, the visibility made possible by content portals, and broad investments in this line of business focused on making general gaming a show. However, people joining this new competitive field requires digital inclusion as well as investment in equipment, in addition to, in virtually all cases, a reasonable connection to the internet. This paper presents an investigation on how socioeconomic conditions and social factors can become hindrances in this journey towards professionalism in the field of e-Sports as a player, coach, or other professions in the field. Existing works in the field are discussed. Moreover, we analyze an opinion survey was applied to 253 people in order to catch a glimpse about the characteristics of the Brazilian player community and understand how negatively the socioeconomic aspects impacts entry into the e-Sports professional scene.

Keywords: e-sports, gaming culture, analysis.

1 INTRODUCTION

In 2016, the Olympic Games took place in Brazil¹. This unprecedented event in this country brought together several nations that participated in various sports modalities. Such a sports tradition

¹Available at https://www.olympic.org/rio-2016, Accessed Jun 13 2018

provides a series of benefits to mankind: integration between people and cultures; infrastructures are prepared and improved to receive the event; and the feeling of union of an entire nation. Sports, in general, yield several gains in human activity, especially concerning the health of both body and mind. In addition, sports practice has strong appeal for competition, fun, teamwork, and various aspects of people interaction. These characteristics are part of the motivation for the practice of a sporting modality based on digital technologies, which is played in computers and virtually explores

Michael Wagner [40] defines e-Sports as "an area of sport activities in which people develop and train mental or physical abilities in the use of information and communication technologies". The term e-sports is used to describe the activity of the practice of electronic games as a sport, mainly in competitions and championships. These activities led to the development of the Brazilian professional scene, which has grown significantly fast in recent years. Competitions revolving around electronic games are becoming increasingly common both in terms of investment from companies and spontaneous initiatives by player communities [35].

the human gameplay abilities to their limit: the electronic sports

Game studios and publishers show greater concern about developing games capable of stimulating the organization of players' communities, which, in turn, gives rise to e-Sports events and player teams. Many companies embraced the concept of competitive games in their new titles. Examples of these are Capcom², SNK³, Epic Games⁴, Blizzard Entertainment⁵⁶, and Supercell⁷,

(e-Sports) [19].

- ³https://www.snk-corp.co.jp/us/games/kof-xiv/wcs/
- ⁴https://www.toornament.com/games/fortnite
- ⁵https://overwatchleague.com/pt-br/
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²https://capcomprotour.com/

⁷https://www.kingscuptournament.com/

to name a few. In this way, a greater number of practitioners have dedicated themselves to the e-sports because of the strong appeal of the team spirit, as well as the ludic aspect that this modality demonstrates.

E-sports are so popular that even the U.S. Army started hosting events ⁸ at its Army Entertainment channel at Twitch.tv⁹. Not only the streaming production quality is surprisingly good, but we could also observe the U.S. Army actually established a worthwhile connection with the broad gaming community.

Such attention from the general audience, plus the growth rate of electronic sports also inspires many cares about player behavior, such as gambling (known as "money matches") and other law concerns [15] [27], in addition to effects on player's health and, also importantly, how a few controversial initiatives try to explore such an outstanding market despite the possible negative impact on public opinion ¹⁰. On the other hand, despite the physical effort required by e-Sports is seemingly smaller, players are subject to vision fatigue, stress, joint and ergonomic injuries, and bad nutrition issues due to the long playing time [31].

Traditional, "analogic" sports, such as football, for example, displays no clear predominance of a social class that becomes professionalized. This is due, in part, to this modality does not demand large investments for their practice. In addition, football is an activity common and encouraged in everyday life. Whilst in football the sports practice depends almost exclusively on a ball and wide area, e-Sports, in their turn, demand investments in some items for its practice: a computer, a console or a smartphone; low latency monitors; internet connection; specific accessories such as a mouse, a mechanical keyboard or an arcade fightstick, for example. In addition, time is required for the practice, training, and enhancement of overall gameplay. Players and enthusiasts must deal with game updates and rule changes, and also keep up to date about strategies.

Carrying out this investigation of e-Sports is therefore strongly motivated by the contemporary context. As a still evolving, delicate democracy, Brazil presents important questions about the limiting factors to the entry into the inherently digital environment of e-Sports. More specifically, it is desired to observe the professionalization phenomenon of a critical perspective that considers the context of the individual who practices this emerging sport modality.

These are the main contributions of this paper:

- We assess the hypothesis that socioeconomic factors inhibit Brazilian players from ascending to a professional career.
- The profile of Brazilian players is drawn based on an opinion survey. Results are compared to data gathered from other sources.
- A discussion is developed about how players' demographic, digital inclusion, gaming habits, and consumer profiles relate to their inclusion in e-Sports.

The remaining of this paper is organized as follows. The scientific methodology is described in Section 2. Section 3 is devoted to discuss background and related works on e-Sports. The proposed opinion survey is detailed throughout Section 4 and the respective results are analyzed in Section 5. Finally, concluding remarks and possible future works deriving from this investigation are presented in Section 6.

⁸http://shoryuken.com/2018/07/26/the-u-s-army-is-hosting-its-own-street-fighter-v-tournament-circuit/

2 METHODOLOGY

First of all, the investigation described in this paper aims to conceptualize an issue that has not been cultural phenomenon whose proportions have been highlighted in the contemporary Brazilian sociocultural moment [10]. The exploratory research model seeks an approximation with the phenomenon, by the information that may lead the researcher to know more about it [14].

Still about this kind of research, Reis [32] affirms that albeit being typically an initial step on a study field, exploratory research occurs when the theme being investigated is still poorly explored. So, researchers usually feel the need to incorporate unseen characteristics and look for new approaches in order to develop an understanding about the phenomenon being studied. Nevertheless, most exploratory research comprises interviews, literature survey, and the analysis of case studies. This procedure actually was chosen to fit our investigation, and additional materials from talks were also analyzed.

Data collection was performed by means of a literature survey. Scientific materials on the matter of e-Sports provide clear findings and general paradigm for approaching the phenomenon, whereas electronic documents and magazines also provide useful information on e-Sports [7]. Primary and secondary bibliographic sources were adopted in our survey [1]. The first concept, first-degree or primary source, is defined by Pinheiro [29] as *primary literature*, corresponding to materials that are presented and are disseminated exactly in the form produced by the original authors. Examples of these materials are presentations, talks, and scientific papers. In their turn, secondary bibliographic sources are interpretations and evaluations about the primary sources [1] [37].

Lectures held on online platforms stand out as interesting possibilities for searching information from a secondary source perspective. We also analyzed interviews that explain the various points that will be addressed in the studies. Finally, our investigation considered existing scientific material, although scarce, besides other sources, such as magazines and news found in general media.

Research results will be presented in a qualitative perspective, since the focus of this paper is to produce information and to illustrate it from initial ideas that have led to the emergence of work. The goal of the sampling opinions from a population, either in the form of selecting scientific papers, or in the light of the application of a questionnaire, is to produce in-depth and illustrative information: whether small or large, what matters is that it is capable of producing new information [13]. Finally, it is important to make it clear that the approach we adopted in this work is mainly concerned with aspects that cannot be quantified, i.e., our reasoning revolves around subjective issues [11] despite any efforts of quantifying qualitative data [37].

Based on this methodological apparatus we adopted, the next Section contains a discussion about the related works found in academic literature and secondary bibliographic sources.

3 RELATED WORK

3.1 Market and e-Sports

Electronic games are becoming increasingly popular, with several championships offering substantial prizes and serving as the stage for players to become celebrities, which in turn gives more audience empathy to games [42] [18] [19] [28] [3]. E-sports were also discussed by Marcel Martoncik [23], who reports on the growth of the main indicators related to the modality. The huge growth in the number of players has generated greater acceptance of computer games as main activity. In this sense, e-Sports also benefit from being in the industrial gaming category, which is growing fast even in the midst of the economic crisis. Revenues with games has already surpassed two other very important industries almost a decade ago, namely the cinema and music industries, as shown in the studies carried out by Santaella and Feitosa [36].

⁹https://www.twitch.tv/ArmyEntertainment

¹⁰ https://www.nutaku.net/promo/esports/lewd-gaming-championship/

3.2 Academia and e-Sports

Another point to be considered in our investigation is the scarcity of research production in the area of electronic sports, linked to the academy's lack of acceptance of the subject. In a broader sense, computer games still face resistance from academia for its recognition as an area of science [16]. The journal *Transactions on Games* [26] appeared only recently in 2017 when the Institute of Electrical and Electronics Engineers (IEEE), one of the major international bodies of science and technology, finally came to recognize the importance of this sector of studies. However, there is still some resistance and prejudice in the academia, especially in traditional, theoretic research programs.

Fundamentally, conceptualization of what is sport and e-Sport, since there are still questions raised by the academic environment regarding the second term. According to Michael Wagner [40], there is no definition widely accepted by all scholars about the term e-Sports. The author also points out that, in order to have a more accepted definition in the academic world and deserve scientific recognition, it is necessary to adapt the concept of sport. Valdir Barbanti suggests that a definition of sport should be supported by the following three conditions [2], which we can also relate to e-Sports:

- Sport refers to specific types of activities. Specific game titles are played in the context of e-Sports, plus adopting also specific, clear game modes. So, despite considering specific titles to be a part of a given game genre, competition revolves around the intrinsic characteristics of each game as an independent modality. That said, League of Legends¹¹ (LoL) and Defense of the Ancients¹² (DotA) are distinct modalities from the Multiplayer Online Battle Arena genre, for example.
- Depends on the conditions under which activities happen. This condition clearly fits well to e-Sports under the light Barbanti's discussion on this matter [2]. First, gameplay can take place in either a casual setting or a formal, organized event. Game rules are clear and standardized. These are both proposed and enforced by official formal entities, such as gaming companies, publishers, and event organizers. Technical, organizational, and learning-related aspects are of utmost relevance for e-Sports. This gives rise to player communities and teams, for example. From a learning perspective, specific game modes specially crafted for players getting into the general information or intricate details about the game, plus official portals, video, and tutorials provided with the game titles. Fighting games, for example, embraced this learning and technical aspect recently by means of new game mode, such as training, challenges, tutorial, and even demonstration modes.
- Sport depends on the subjective orientation of the participants involved in the activities. Despite prizes, fame, and scholarship for athletes, competitors and general participants of the electronic sports are motivated mainly by a feeling of satisfaction when playing. This distinction is more clear when we consider an "amateur" players, who, in the very meaning of the word, *loves* to a given extent the activity of playing an electronic game in a competition [23].

3.3 E-Sports and Profissionalization

As previously mentioned, the number of opportunities linked to the e-Sport increased considerably in the years preceding this research. The emergence of positions beyond the player, such as the technical commission, *streamers*, narrators and many other professions in the same area demonstrate how feasible it can be to invest in a professional career related to e-Sports [25] [5] [35].

These electronic sports prioritize the professionalization of the gameplay act, either by obtaining remuneration, by organizing competitions with monetary prizes, or simply by the professional way in which players face digital games, and can also be called *professional gaming* [40] [23]. In addition to the prizes awarded in tournaments, professional players who belong to well-established organizations usually have a fixed monthly salary. Organizations owning teams and players' passes are usually sponsored by several companies, who give money and equipment, most often in exchange for disclosure to the business [15] [27].

The emergence of professionalization in the midst of the games came against the classic definitions that games and work comprised a *dichotomy* as advocated by scholars Roger Callois [6] and Johan Huizinga [17]. Given the definitions of what is a game presented by these two authors, they defend the idea that the game would be a "non serious" activity, almost totally disconnected from the "normal" life [33] [22] [21]. Both authors also argued that gaming would be an activity free of material interests, with the impossibility of any generation of goods, profit or wealth, and therefore, unproductive, as previously exposed by other studies [22].

That said, it is clear that the act of playing, initially associated with an exclusively ludic status, ended up overcoming this limit. Gaming become a constituent part of some labor activities, thus evolving later to the activities linked to a sports modality in search of high performance and the other elements of gameplay.

3.4 Inclusion and e-Sports

Given the reasoning developed and exposed previously, the e-Sports cultural and marketing phenomenon is obviously relevant to contemporary society. This happen because the very existence of e-Sports transforms the perspective and even sheds light on issues such as prejudice and academic importance. In this way, it is important to evaluate the growth factors of this modality, not only because it is a mere young movement linked to digital technologies, but also because of the great impact that is reflected in other areas of society, culture, and also the economy.

Because it is an inherently digital modality, it is totally associated with Digital Inclusion. Although e-Sport has great potential for a significant improvement in the participation of poor people from a technological perspective, the socioeconomic context is still a determining factor for joining the profession of player. E-Sports undoubtedly has the power to transform the lives of less wealthy people, but do these individuals feel a relationship of belonging and participation with this phenomenon? According to Marcos Palacios [28], Brazil displays a society of exclusions, extreme polarizations, thus the share of the population that is excluded digitally is also excluded educationally and culturally. Following this line of reasoning, it is not an absurd at all to assume that such people, who are less prepared intellectually and culturally tend to make more limited use of the technologies to which they may have access.

Rocha et al. [35], who studied players' consumer profile from Bahia in the context of the popular League of Legends title, concluded that just over half of the interviewees have some paid occupation. Moreover, the typical total family income is between two and four minimum wages in most cases. There is no conclusive evidence about the actual participation in e-Sports of the portion of a fifth of respondents whose family income is at most two minimum wages. It is interesting to observe that this audience consumes electronic equipment related to the game. From those services, internet connection stands out as the most expensive. So, based on the fact that such a connection costs about \$ 180 a year, it is reasonable to hypothesize that an interviewee typically invests near this low amount annually in the game she plays.

¹¹ http://www.leagueoflegends.com/

¹²http://www.dota2.com/play/

Manuel Castells [8] enumerates the three broad ways in which people are digitally excluded. First of all, some people have absolutely no access to the internet. Second, people with access but limited to very low technical capacity. Finally and most importantly according to Castells' opinion, since this matter lacks a broad discussion, people are excluded even when they have a connection to the network but their educational and cultural exclusion manifests when these people are not aware about what access to use and how to find the information they demand. These individuals have limited ability to combining different information, and worst, how such knowledge would be put into practice for improving aspects of their lives.

The several opinions and research materials analyzed previously give raise to the question about the mutual impacts between society and e-Sports. More specifically, *does the modality have an efficient and democratic way of entry for people of any social stratum?* We advocate that this is not the case, especially when games require equipment and an actual form of digital inclusion as cited by Castells [8].

4 OPINION SURVEY

An opinion survey was conducted in order to obtain an understanding of whether socioeconomic conditions and social factors generate a negative impact on access to this modality. Such a tool may help us to draw a general profile of players and what issues are hindering the professionalization of these individuals in e-Sports.

This said, questions in the opinion survey were developed to infer information about the socioeconomic situation of the respondents. We also tried to allow performing a cross-over of data, by analyzing their profile as a professional or amateur player. In addition, it is also important to collect data on the demographic profile of participants.

Questions in the form are designed to adopt the Likert scale [20] in admissible responses whenever possible. This scale is preferred in this work since we aim to analyze data regarding the attitudes and the degree of conformity of the respondent with regard to the proposed statements or questions. Literature is plenty of studies which successfully applied the Likert scale to acquire and quantify qualitative data [24] [14]. On the other hand, some responses were left open regarding other questions, such as the genre and gaming platforms, which comprises categorical data. The next subsections are devoted to detailing the design of each question in the opinion survey.

4.1 Demographic Profile

Demographic information is useful not only in this work, but also for further studies regarding age and gender inclusion in e-Sports. As so, we proposed the following questions in this section of the survey:

- **Q1:** *What is your gender*? We left this question open to users to respond or not. Respondents were granted the freedom to use any term that defines their gender identity.
- **Q2:** *How old are you?* Allowed responses are integer, natural numbers, but limited to the following exclusive ranges: from 5 to 10 years; from 11 to 15 years; from 16 to 20 years; from 21 to 25 years; from 26 to 30 years; or more than 30 years old.
- Q3: What is your highest level of education (complete or incomplete)? Responses are required. Allowed values are: elementary school; high school; higher education; and postgraduate degree.

Respondents could also inform in which state they live. Moreover, they could also inform whether they reside in the interior or in the capital. However, these questions are missing in most responses, so we believe it is more prudent to omit these responses from our analysis to avoid biased conclusions.

4.2 Digital Inclusion and Gaming Habits

After prototyping our form with a focal group, we found it would be better to group questions regarding digital inclusion and game habits. Since people used the internet to fill the survey, it was considered more adequate to avoid direct questions regarding digital inclusion. Basically such questions could make the respondents uncomfortable with the form and make them give up completing the form. Moreover, despite this topic being a little sensitive and complex enough to deserve an appropriate, specific investigation, other questions in the survey about gaming habits, education, connection, and consumer habits could be used to presume some general level of digital inclusion.

- **Q4:** *How do you connect to the internet to play online?* Multiple simultaneous responses are allowed in this question. Allowed values are: from broadband home connection; from mobile data plan/service; from libraries or other public services; from school; and from LAN Houses.
- **Q5:** What gaming platforms do you play on? This question also allows multiple simultaneous responses, so allowed values are: "I do not play"; on the PC or notebook; on the cell-phone or a tablet; on my console or portable console; and I also play board games often. People who responded "I do not play" were discarded from this study.
- **Q6:** *How many hours do you play per week?* Respondents' responses are an estimate of how much time per week the player engages in the game. There are the following ranges allowed in responses: up to 1 hour; from 2 to 3 hours; from 4 to 6 hours; from 7 to 10 hours; from 11 to 16 hours; and more than 16 hours per week.
- **Q7:** *How often do you play?* It should be noted that the answer to this question was designed to present, in a general way, some consistency with the answer to the previous question. Allowed responses are: never or almost never; one day per week; a few days per week; and every day. Values are missing for individuals who could not answer this question.

4.3 Consumer Profile and Inclusion in e-Sports

Questions about consumer habits and degree of inclusion in e-Sports are more explicit. Individuals are asked about their knowledge or participation in e-Sports, ranging from no knowledge to regular participation as a player. In addition, respondents inform about how much they invest in gaming and also about the possession of any specific equipment or accessories, as follows:

- **Q8:** *Have you ever heard about e-Sports or electronic sports?* Allowed responses are: "no, never"; "yes, a little"; "yes, I have been following some events"; "of course, I am an amateur (cyber) athlete"; "yes, I train regularly with my friends/team".
- **Q9:** *How much do you estimate you spend on games per year?* Responses are distributed in the following ranges: nothing; up to R\$ 100.00; up to R\$ 200.00; up to R\$ 500.00; up to R\$ 1,000.00; and more than R\$ 1,000.00.
- **Q10:** Do you own or have you ever owned any special gaming accessory? Which one(s)? . This question along with the penultimate one, aims to obtain a view of the players' consumption to try to establish a relationship between the supposed purchasing power and the respondent's participation in e-Sports.

5 RESULTS

The questionnaire was prepared and applied by electronic media. We used the Google Forms as the tool due to its simplicity. Our digital form was conveniently spread as an internet link in virtual social networking groups related to gaming during one month. A total of 253 responses were obtained, of which 75 respondents who presented complete and correct completeness of the form.

The public assessed in this questionnaire is mainly characterized by individuals who play online from home. Based on the data collected, the respondents present considerable diversity, ranging from a casual player to the professional player. Five respondents falling into this second category, who also contacted us to express their support to this research.

5.1 Demographic Profile

5.1.1 Gender

With respect to the gender variable (Q1), only a small portion of respondents is female (7%) or diverse (2%). Interestingly, one respondent stated that his/her genre is "Pirate". Gender and age distribution can be see in Figure 1. We can clearly observe a great prevalence of male people. This information is partially confirmed in a study that was conducted by Newzoo [25] about game console players in Brazil. This company found that 41% of respondents of this specific survey were women. In contrast to this, Pozzebon et al. [30] verified that there is a significant male predominance in games of the MMO (*Massively Multiplayer Online Game*) genre, i.e., about reaching 90% of respondents are male. These results are confirmed to certain extent in our research, with 91%.

5.1.2 Age



Figure 2: Age distribution from respondents.

The chart in Figure 2 displays the age distribution of the interviewees based on responses collected. This aspect is very important to highlight the relationship between age, engagement in the game, and socioeconomic issues. It is possible to perceive a great variety with respect to the age of the interviewed ones. However, there is a greater concentration of people in the range between 21 and 25 years. The survey conducted by Game Brasil in 2017 [5] shows that, in the general Brazilian gaming market, the most present age range is between 25 and 34 years, which represents 36.2% of respondents. Similarly, in the survey conducted by NewZoo [25], it was found that 48% of those interviewed between men and women playing on the console were between the ages of 21 and 35, and the remainder was spread among the other ages.

Based on the same studies conducted by Newzoo in 2017, it is possible to notice a possible worldwide trend of predominance for the age group between 21 and 35 years, since, in the North American scenario, this range represents 33% of players between men and women playing on mobile devices. Concerning Japan, in its turn, this age group also concentrates the majority of the public, reaching the expressive value of 30% of the players of computer games.

5.1.3 Highest Level of Education





Figure 3: Highest level of education (complete or incomplete) reported by players.

The next graph, shown in Figure 3, refers to the level of respondents education. It is noticed that the vast majority of respondents already have completed or in progress higher education, an effect that may be directly related to the fact that most of the interviewees belong to the age group of 21 to 25 years. In the MMO profile study from Pozzebon (2014), it was found that almost 52% of the respondents had incomplete high school or incomplete undergraduate course, and 33% had a complete undergraduate course. This demonstrates that even within the category of digital games, players' profiles can vary widely. Next, we will analyze the data collected from the perspective of digital inclusion and infrastructure for playing games.

5.2 Digital Inclusion and Gaming Habits

5.2.1 Internet Connection

According to the answers obtained in the two questions illustrated by the graphs of Figure 4, it can be seen that most respondents have access to the internet, whether it be broadband or mobile data plan. In particular, 98.4% of respondents claim to have broadband connection at their homes. Respondents also have technological devices for the practice of electronic games such as computers, cell phones and / or consoles (Figure 4, Q5). The development of technology optimizes and constitutes a new way of perception between the relationship of individuals, a factor that has aided decisively the rise of e-Sports.

This technological factor was quoted by Alan Queiroz (2016), who commented: "The presence of digital technology mediating human relations and constituent of the *Society in Network*, makes the elements that compose it bring new realities to traditional contexts, changing their ways of perceiving the spheres of that same society" [9]. Taylor also addressed the issue of infrastructure and attributed to this factor the great development of the Korean scenario: "In addition to the broadband infrastructure already mentioned, the South Korean government provides financial support to cybercafes and LAN houses, designated by PC Bangs, for obtaining licenses for games, allowing these establishments to make reduced prices on access to and use of computers, something that especially appeals to younger players" [38].

On the other hand, Denani discussed the importance of telecommunication infrastructure and technological consumer goods in the context of the several countries such as the United States, Brazil, South Korea, China, and much of Europe as follows: "In the late



Q5: Gaming Platforms



Figure 4: Internet Connection and gaming platforms. Alternative labels are used herein for better visualization.

1990s, with the popularization of personal computers and the possibility of communication between them, such as the internet or LAN connections, there was a qualitative leap in both multiplayer gaming experience and in the formation and growth of player communities" [12].

5.2.2 Gaming Platforms

Players are spread along platforms in the following manner according to the responses: 74.7% play on the PC platform, it be a computer or a notebook; 66.0% enjoy their games on consoles; 41.1% play games using mobile platforms; and 22.9% also enjoy playing board games.

This distribution reflects a global trend observed by NewZoo's [41] report on market share. The mobile market is growing in a fast pace, accounting for more than half of revenues in 2018, so oneself can expect that outstanding game titles will also be part of the e-Sports. On the other hand, according to the same report, the market shares from PC and consoles are very similar.

However, from a user base perspective, consoles have less users. According to recent reports about Brazilian game market ¹³, there are 75.7 million regular players, and half this population plays mobile games, while only about 41% and 34% of these play on the PC and consoles, respectively. However, most published surveys lack information about the board game user base. Despite this fact, it is reasonable to assume that Brazilian players associate consoles with the act of being a gamer.

5.2.3 Gaming Habits

The next charts are simple visualizations of the important data regarding the practice of electronic games (see Figure 5). However,

Q6: Hours Playing per Week



Q7: Weekly Gameplay Frequecy



Figure 5: Gaming habits reported by respondents about the quantity and the frequency of gaming, in terms of hours played and days in which each respondent plays, on a weekly basis, respectively.

they are fundamental for building an understanding about the typical Brazilian player.

As can be seen, 78% of respondents claim they play at least 4 hours per week, and more than half play at least 7 hours a week. Moreover, they are also reported to play clearly on an almost every day. It is important to observe that regular gameplay is necessary to evolve oneself skills and knowledge about the game. In this sense we can affirm that about half players display disposal of time and/or a minimal level of engagement in gaming, which, in turn, may occasionally lead them to seek a path to professionalization. On the other hand, only a quarter of the respondents seem to have the time to dig deeper into the games they play: 90.6% of those who play more than 16 hours per week also claim to play virtually every day, which, in turn, represents only 22.9% of the total. Therefore we can assume that, to a reasonable extent, the remaining players could be considered as excluded from a time availability perspective.

The motivation for playing electronic games came a long time ago, since the arcades, when the form of competition was simply to keep their name in the game, more precisely at the top of the score screen list. Regarding the competition aspect of arcade culture, Taylor states that "while some games allowed face-to-face competition, most of the matches between the participants happened asynchronously, for a higher score list maintained by the arcade game itself" [38].

Consequently, with the possibility of top-flight disputes in real time, the yearning for victory became even greater. This is especially so when a common player decides and motivates himself to become a professional player, as Taylor also pointed out: "A former casual player begins to become a hardcore gamer, focusing on a smaller number of games, searching endlessly overcome all the challenges proposed in these titles, "dominating" the game" [39].

¹³ https://newzoo.com/insights/infographics/brazil-games-market-2018/







Q10: Gaming Accessory Ownership



Figure 6: Charts illustrating distribution of responses about consumer habits and e-Sport involvement. Different labels are used herein for ease of visualization.

It is important to note this strategy, common in "analog" games, for the athlete to focus on a less general scope in order to exploit her potential or to improve her skills. This behavior is also observed within some genres, such as fighting games^{14 15}, where, although there are exceptions¹⁶, professional players have specialized in a single title.

5.3 Consumer Habits and e-Sports

5.3.1 Knowledge about e-Sports

It is possible to notice a strong public engagement with e-Sports at various levels of knowledge, as illustrated by Figure 6, **Q8**: 90% of respondents know about the matter, and 72% of these individuals present a level of involvement with this phenomenon. In addition, of those involved in the e-Sport scene, about 27.8% claim to be competitors. On the other hand, there is also a minority of the to-tality that did not know about the topic at the time of the interview.

Some remarkable recent events may help us to understand this phenomenon: the introduction of broadcasts on television networks such as SporTV and Esporte Interativo; the advent of great teams such Flamengo, Santos and others in the e-Sports scene; grandiose events in terms of public, structure, and dissemination; and the great volume of investments and the high awards in championships.

In fact, investments in the industry are crucial to the development of e-Sports, as Denani quoted: "By citing only a few who make the rounds around the globe, one can take as example Dreamhack and Intel Extreme Masters, with seasonal editions of games like Counter Strike, League of Legends [34], Hearthstone [4] and Starcraft 2. The variety of games ensures a growing audience over the years. To give an idea, the 2016 tournament finals at Intel have totaled over 34 million viewers worldwide." [12].

5.3.2 Consumer Profile

As shown in Figure 6, charts **Q9** and **Q10** concern the expenses of games by the interviewees. Most respondents on both questions claim to spend a certain amount on games per year and they are also investing in equipment that enhances their gaming experience. This reflects an effort to achieve high-level performance, especially because these accessories are game-related and most of marketing associates such equipment to pro players and/or better gaming performance.

Several companies such as Kabum, NVIDIA, Razer, HyperX and many others actually operate exclusive electronic equipment to optimize the player experience and they are directly involved in the e-Sports scenario by sponsoring teams. According to portal [25], Brazil in 2017 had a total of 66.3 million players who consumed an amount of \$ 1.3 billion annually. This corroborates, albeit partially, the existence of a clear majority of the public that invests in games, whether to acquire new titles or to improve their gaming experiences in a niche or even a single title.

Finally, we can perceive an evidence, which is sufficiently strong, suggesting that an actual condition of exclusion exists: 47% of respondents do not own gaming accessories, with 21% saying they do not own equipment because of the prohibitive price. This worrying hypothesis is corroborated by the fact that 46% of respondents spend up to R\$ 200 per year with games. Therefore, based on this analysis, It is no absurd to assume that about half of players may experience difficulties in improving their gaming abilities and experiences, especially when money is a prerequisite for doing so.

6 CONCLUSIONS AND FUTURE WORK

This article deals with social, economic, and cultural issues that can become an impeding factor for Brazilian players and enthusiasts to become professional. By means of an opinion survey, we analyzed the profile of Brazilian players and how socioeconomic factors can become determining element in their professionalism and the relationship between digital inclusion and e-Sports. Based on evidence found in our survey, we advocate that the professionalization of e-Sports players still faces several barriers in Brazil, in particular related to time and money. Players reportedly are interested in getting better equipment, which are important for pro-level performance. However, there is a formidable barrier to be transposed when we observed that more than 75% players are able to invest no more than \$ 150 a year.

¹⁴https://www.youtube.com/watch?v=DaoC81FuFGs

¹⁵https://www.youtube.com/watch?v=NBLCeneKRcM

¹⁶http://www.guinnessworldrecords.com/news/2017/10/american-

gamer-sonicfox-enters-the-record-books-with-four-esports-titles-499500

Only about a quarter of players have more than 16 hours per week to play on a regular, daily basis. Moreover, despite the education degree and broadband internet access at her home, a limited budget inhibits the typical Brazilian player from investing in consoles, computers, titles, and especially accessories. The socioeconomic profile we observed can be a factor that deepens the social abyss in e-sports by considering the mere access to the means necessary for a proper practice. Such affirmations are supported by analyzes performed on data collected from our online opinion survey with 253 respondents.

The democratization of this process, as well as occurs in more traditional sports, demands actions to be taken in order to enable players from disadvantaged social classes to compete on the same level of those in more affluent social classes. In this sense, public policies could be proposed to favor the structuring of common environments that are properly equipped for the practice of e-sports, at very low charges, as for example occurred in South Korea. In addition, the implementation of policies aimed at greater digital inclusion so that people who know this modality can come to know and engage, whether as a player, coach, content producer or some other related sub-area.

Due to the exploratory nature of this research and the adoption of an online questionnaire as the main data acquisition tool, it is not possible to accurately capture or transmit the feelings of the interviewees. A more profound investigation of their difficulty, the socioeconomic scenario that limits them and the several other important variables are left for further analysis. It is important to note that e-Sports already present cultural issues in Brazil. Field research is required to obtain complementary information, especially about prejudice and family support.

In the near future, playing electronic games may become as popular as other competitive analogic counterparts at school and even under the light of the wide media. Considering that e-Sports as a rising social phenomenon, from the game titles themselves to the sporting modality, it is important to investigate this complex phenomenon comprehensively and meticulously in order to understand its impacts and their importance for contemporary society. The following future research directions can be taken from this investigation: elaboration of more comprehensive questionnaires; carrying out interviews with e-Sports athletes about their social context and respective professionalization processes; how travel costs inhibit aspiring players from competing in Brazil; incorporate analysis of governmental or private databases, and the proposal of reflections on the development of the Brazilian scenario *vis-à-vis* other similar realities, such as the other BRICS countries, for example.

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