Gender Asymmetries in the Digital Games Sector in Portugal

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ABSTRACT
In this paper, we describe the results of a research in progress that seeks to analyze gender asymmetries in the digital games sector in Portugal. The results of its first phase indicated that the percentage of girls enrolled in digital games courses is significantly lower than the percentage of boys. This suggests that tertiary training in digital games is not attractive for girls in Portugal. We also examined physical characteristics of characters with human traits in digital games produced in the country between 2014 and 2018 through a gender perspective. Finally, we analyzed the results of the focus groups made with higher education students. Many of them argued that the under-representation of women in gaming industry is a matter of sensitivities of interest. This research points to the need to develop in-depth studies on a theme that has been neglected for years in the game studies.

Keywords
gender, asymmetries, digital games, Portugal

INTRODUCTION
In the 21st century, the effective fight against gender asymmetries has been present in the political agendas of several countries around the world. In Portugal, for example, the National Strategy for Equality and Non-Discrimination (2018-2030), defined the equality between women and men as one of its pillars. This Government policy seeks structural and cultural changes in gender social relations, combating persistent stereotypes and asymmetries. It is in line with the United Nations 2030 Agenda for Sustainable Development, which has defined as some of its goals: end all forms of discrimination against all women and to enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women[1].

Gender equality is not only a fundamental human right but it is also essential for economic development since, for an economy to function fully, girls and women (who

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represent half of the world's population, over 40% of the global workforce, and over half of the world's university students) should participate in activities that make better use of their skills (United Nations, 2019; World Bank, 2012; 2018).

More recently, the European Institute for Gender Equality (EIGE) has developed a robust econometric model in order to estimate the macroeconomic benefits of gender equality in the European Union, in which it has chosen four areas of inequality which are seen as crucial for the economic development, namely (1) increasing women's participation in the labour market, (2) ending the salary gap, (3) increasing women's participation in Science, Technology, Engineering and Mathematics (STEM), (4) promoting the equal sharing between women and men of unpaid work in the domestic service and the care of their children or their dependents (Gender Equality Index, 2017).

Note that gender issues are not limited to equal access in some sectors of society, but also include how stereotypes exclude people according to their gender, race, ethnicity or sexual orientation. Thus, understanding how gender is being negotiated in our daily lives also means understanding how discriminatory behavior against people with non-normative identities is being practiced (Nogueira, 2017).

In the last decade, gender equality has mobilized a set of academic research agendas focused on sectors of the economy in which this dimension has long been neglected, such as the entertainment industry, specifically the gaming sector (Consalvo, 2012; Fortim, 2008; Friman, 2015; Gouveia, 2009; Jenkins and Cassel, 2008; Kondrat, 2015; Nooney, 2013; Richard, 2013; Ruotsalainen and Friman, 2018; Shaw, 2010, 2014).

While the number of girls and women consuming video games has been increasing significantly, female participation in electronic sports has been low (Ruotsalainen and Friman, 2018). Furthermore, many products that are launched on the market continue to reinforce gender stereotypes. By focusing on male and female characters in video games, for example, it is possible to identify gender stereotypes, from the hypersexualization of female characters to the muscular and robust bodies of male characters (Batchelor, 2019; Perreault *et al*., 2016).

In Portugal, this area of research has received little attention from social scientists. The few scientific publications on the subject have focused on gender stereotypes in video games (e.g. Freitas, 2018; Subtil Portugal, 2009), and how the design of the online system can stimulate the participation of groups of players, both men and women, and promoting the inclusion of distinct communities on the same platform (Gouveia, 2009; 2010).

In 2016, the Portuguese Video Game Science Society carried out a mapping and characterization of the national gaming industry (Santos *et al.*, 2016), identifying 154 video game development companies. Although this study provides a large amount of data on the profile of employees in this industry, no information was collected on the number of men and women in video game companies. The lack of information on this aspect makes it difficult to take accountability measures in the national gaming sector as well as policies aimed at implementing programs encouraging the equal participation of men and women in this industry.

Faced with this gap, we are carrying out a study to identify possible gender problems in this sector. The research is in progress and includes some phases, namely: (1) identification of the number of boys and girls enrolled in digital game courses in the country, (2) identification of how female and male characters are represented in video games produced in Portugal in the last four years (2014-2018), and (3) focus groups

with students of the courses of digital games/game design in Portuguese higher institutions.

In this paper, we will present and discuss the results already collected in all the phases mentioned above.

MATERIALS AND METHODS

This is an exploratory study which employs a mixed methodology. In the first phase of this study, which consisted in collecting the number of boys and girls enrolled in digital games courses in Portugal, we analyzed the database of the Directorate General of Education and Science Statistics and Directorate General for Higher Education. We selected all training offers from the last two school years (2016/2017 and 2017/2018) which include the words "games" and "video games"[2] in its designation.

Regarding the second phase, which aimed to identify the physical characteristics of characters with human traits in video games produced in Portugal in the last four years (2014-2018), we analyzed all games created or developed by independent producers and/or Portuguese companies which were marketed on online distribution platforms. The games were selected in such a way as to exclude as few titles as possible.

The third phase was developed during the 2018/2019 academic year (November, December 2018, and March 2019). We conducted three focus groups in a Portuguese public higher education institution offering training in digital games. To participate in the focus group, it was only necessary to be enrolled in one of its courses (design, multimedia, audiovisual or computer science). A script of questions focusing on four aspects was developed, in particular: (1) participants' experiences as gamers, (2) gender stereotypes in digital games: visual components (colors, scenarios, etc.), game characters (physical characteristics, skills/power in the game and psychological profiles), (3) gender asymmetries in digital game training, (4) gender equality in the gaming industry and the presence of women in this sector.

All the focus groups were conducted in a classroom provided by the educational institution and were guided by one of the authors of this article. The audio and video of all sessions were recorded with the permission of all participants. Each session lasted an average of an hour and 15 minutes.

As a qualitative data analysis methodology, we did a Thematic Analysis (Braun and Clarke, 2012; 2013). This is "a method for systematically identifying, organizing, and offering insight into patterns of meaning (themes) across a data set, which allows us to see and make sense of collective or shared meanings and experiences" (Braun and Clarke, 2012, p. 57). First, the focus groups sessions were transcribed in order to include the first ideas/categories. Then, we organized these ideas into meaning groups. Finally, we drew up a list of themes reflecting the meanings expressed in the participants' speeches.

RESULTS AND ANALYSIS

Female presence in video games degrees in Portugal: results and analysis of the first phase.

Training focused exclusively on video games is recent in Portugal. The first course whose designation refers to digital games was held at the Polytechnic Institute of *Cávado* and *Ave*, the bachelor's in digital games development engineering, in 2009.

Over a decade, there has been an increase in the supply of tertiary education in this area, from one to ten courses according to data from the Directorate General for Higher Education, as shown in Table 1 below.

Higher Education Institution	**Degree title**	**Programs**	**Areas**[3]	**Type of institution**	**Start year**
Polytechnic Institute of *Cávado* and *Ave*	Digital Games Development Engineering	Undergraduate Degree	Electronics and Automation	Public Higher Education	2009
Polytechnic Institute of *Bragança*	Digital Game Design	Undergraduate Degree	Audiovisual and Media Production	Public Higher Education	2011
Lusófona University (Lisbon)	Multimedia Applications and Video Games	Undergraduate Degree	Audiovisual and Media Production	Private Higher Education	2011
Europeia University	Games and Applications Development	Undergraduate Degree	Computer Sciences	Private Higher Education	2014
Polytechnic Institute of *Leiria*	Digital Games and Multimedia	Undergraduate Degree	Audiovisual and Media Production	Public Higher Education	2014
Beira Interior University	Design and Digital Games Development	Master's Degree	Audiovisual and Media Production	Public Higher Education	2014
Polytechnic Institute of *Cávado* and *Ave*	Engineering in Digital Game Development	Master's Degree	Electronics and Automation	Public Higher Education	2015
Polytechnic Institute of *Maia*	Multimedia Production and Digital Games	Technical Short Cycle Degree	Audiovisual and Media Production	Private Higher Education	2015
Polytechnic Institute of *Porto*	Game Design and Digital Animation	Technical Short Cycle Degree	Audiovisual and Media Production	Public Higher Education	2016
Lusófona University (*Porto*)	Video Games and Multimedia Applications	Undergraduate Degree	Audiovisual and Media Production	Private Higher Education	2017

Table 1: List of digital games degrees in Portugal. Source: Directorate General for Higher Education.

In the 2017/2018 academic year, there were ten training offers including six undergraduate degrees, two master's degrees, and two technical short cycle degree (typical duration: 2 years). Regarding the type of institution, the degrees were offered mainly by public higher education institutions. Polytechnics were the institutions with the largest offer of degrees. Among the areas of education and training, audiovisual and media production predominated.

In the database of the sources consulted, there were other degrees offered by higher education institutions but which had not opened new classes in the academic year under analysis, namely the degree in Games and Computational Simulation at the *Lusíada*

University and technical short cycle degree in Development and Arts for Digital Games offered by the Polytechnic Institute of *Tomar*.

We identified many educational programs in Portuguese higher education institutions designed for the development, art or design of digital games. There are, for example, Master's degrees in Multimedia at the Universities of *Aveiro* and *Porto*, a master's in Computer Engineering, and a master's in Multimedia Arts, both at the University of Lisbon. There are also other post-graduate courses in interactive technologies that were not included in our analysis because the words "digital games" or "video games" were omitted from their titles.

Thus, in the last decade, Portuguese higher education institutions have adapted to an emerging training field by offering specific diplomas in the various domains of digital games. These training courses are also due to educational changes in Portugal as a result of the Bologna Process. According to Zagalo (2013, p. 200), "after the Bologna Process, the panorama of Portuguese higher education became very different. The number of public and private offerings in the area of audiovisual and multimedia communication has been significantly increased, and higher education courses have been created specifically in the area of video games".

Another important aspect to consider in increasing the number of these courses is that in Portugal "the dynamism of the video game sector has been accompanied by processes of constant reinvention and reorganization of its productive fabric" (Santos *et al.*, 2016, p. 66). As already mentioned, in 2016 there were 154 video game development companies. Of these, almost half had skilled employees. According to Santos *et al.* (2016), it is estimated that the total employment volume in this sector was between 650 and 1,200 people, which require higher levels of technological expertise. Thus, with an emerging national industry and with an increasingly demanding market, training in digital games can be a differential when there is recruitment in the gaming industry. Therefore, the increase in the offer of digital games courses and degrees can reflect this dynamic where skilled labor is needed.

Summing up, the expansion of the gaming industry, both national and international, has created a demand for skilled professionals, increasing the offer of training degrees and courses focused exclusively on the area of digital games. In Portugal, the increase in digital games training suggests that there is a restructuring of educational programs in line with the needs of a growing local industry.

Another aspect which was important to identify in the data from the Directorate General for Education and Science Statistics was the number of boys and girls enrolled in the digital games' courses. Data for the 2016/2017 and 2017/2018 academic years were organized in Table 2 below:

Higher Education Institution	**Degree title**	**Programs**	**Boys enrolled** 16/17- 17/18		**Girls enrolled** 16/17- 17/18		**Total enrolled** 16/17- 17/18	
Polytechnic Institute of *Cávado* and *Ave*	Engineering in Digital Game Development	Undergraduate Degree	106	118	6	5	112	123
Polytechnic Institute of *Bragança*	Digital Game Design	Undergraduate Degree	101	126	22	23	123	149

Lusófona University (Lisbon)	Multimedia Applications and Video Games	Undergraduate Degree	87	94	10	14	97	108
Europeia University	Games and Applications Development	Undergraduate Degree	33	34	1	4	34	38
Polytechnic Institute of *Leiria*	Digital Game and Multimedia	Undergraduate Degree	116	136	27	35	143	171
Beira Interior University	Design and Digital Games Development	Master's degree	28	23	9	11	37	34
Polytechnic Institute of *Cávado* and *Ave*	Engineering in Digital Game Development	Master's degree	21	20	4	4	25	24
Polytechnic Institute of *Maia*	Multimedia Production and Digital Games	Technical Short Cycle Degree	37	45	9	7	46	52
Polytechnic Institute of *Porto*	Game Design and Digital Animation	Technical Short Cycle Degree	31	30	3	3	34	33
Lusófona University (*Porto*)	Video Games and Multimedia Applications	Undergraduate Degree	-	9	-	-	-	9
Total			**560**	**635**	**91**	**106**	**651**	**741**
			86%	85,7%	14%	14,3%	100%	100%

Table 2: Number of boys and girls (national and foreign) enrolled in the Digital Games/Video Games degrees in the 2016/17 and 2017/18 academic years in Portugal. Source: Directorate General of Education and Science Statistics.

There was an increase in enrollments in the 2017/18 academic year over the previous year, from 651 enrollments to 741. Of this total, the percentage of girls enrolled was practically the same in the two school years, 14%.

In the degrees linked to the areas of Computer Science and Electronics and Automation (*Europeia* University and Polytechnic Institute of *Cávado* and *Ave*), the total number of girls is lower than the number of boys enrolled. Similarly, the number of girls enrolled is lower in degrees whose area of expertise is Audiovisual and Media Production. Thus, the weak demand from girls in higher education in the area of digital/video games in Portugal suggest that this field is not attractive for the female public.

According to Cassel and Jenkins (1998), the problem of the level of interest in computer games between boys and girls is due to the fact that gender cultural constructs are not separated from power relations. In their view, digital games provide an easy introduction to computer literacy, so those children who do not come into contact with such technologies at an early age may not express an interest in this area.

The under-representation of women in digital game training degrees in Portugal indicates that it is necessary to develop programs to attract the female audience to STEM fields (Lima, 2018). We would like to highlight an initiative of the Portuguese government, led by the Commission for Citizenship and Gender Equality which started

in 2017 the "Engineers for a day"[4] program. This initiative aims to develop actions focused on engineering challenges, study visits, workshops, engineering and technology laboratories, focusing on the female audience. In this way, it aims to encourage female students of non-higher education to choose the areas of engineering and technology.

Representations of the characters in video games produced in Portugal: results and analysis of the second phase.

In order to identify how the characters, male and female, are represented in the digital games produced in the last four years (2014-2018) in Portugal, we selected all the games sold by Portuguese companies and freelancers. To select the games, we consult the following digital distribution platforms: Steam, iTunes, and Google Play. In this paper, we will present only the analysis of physical characteristics of the characters.

We selected a total of 17 digital games (see Table 3). The game cover, the official trailer, and the screenshots available were analyzed. When there were websites of the game, we also consulted it.

Release date	Title	Developer/ Creator	Male characters Main? Secondary?	Female characters Main? Secondary?	Physical characteristics (male characters)	Physical characteristics (female characters)
2018	Inspector Ze and Robot Clown- the Intercity Killer	Nerd Monkeys	Yes (main and secondary)	Yes (secondary)	Short, tall, fat, thin, light skinned, there is one black	Long hair, thin waist, big breasts, blonde, redhead, thick lips
2018	Strikers Edge	Fun Punch Games	Yes (main and secondary)	Yes (main and secondary)	Muscular bodies (wear armor), fair skin, strong	Thin, blonde, long hair, (two wear armor)
2017	Demons Age	Bigmoon Entertainment	Yes (main and secondary)	Yes (main and secondary)	Tall, fair skin, strong	Thin, dark hair, thin waist
2017	Super Crossbar Challenge	Pedro Cabaço	Yes (main and secondary)	Yes (secondary)	Small, the head is the size of the rest of the body (similar to dwarf)	Thin, blonde and dark hair, thin waist small, thin waist
2017	Dawn of andromeda	GreyWolf's Entertainment	Yes (secondary)	Yes (secondary)	Redheads, fair skin, average height	Aliens with big breasts and slim waist
2017	Greedy Guns	Tio Atum	Yes (main)	Yes (main)	Rectangular head, big red nose, light skin	Big red nose, thin waist, blonde, armored arms
2017	Backstorm	AppGeneration	Yes (main)	No	Cubic, short hair, fair skin, with beard	-
2016	Syndrome	Camel 101 e Bigmoon Entertainment	Yes (main)	No	White skin, short hair, thin, medium height	-
2016	Talewind	Windlimit	Yes (main)	No	Blond and small	-

2016	Between me and the night	Lace Games and RainDance	Yes (main)	Yes (secondary)	White skin, red hair, thin, small	Tall, dark hair, white skin
2016	SmashTime	Bica Studios	Yes (secondary)	Yes (main)	Small (like dwarf), white skin.	Redhead, small (like dwarf), thin waist
2015	Hush, Into Darkness	GS78 Studio	Yes (secondary)	Yes (main and secondary)	It's black and white kids and a fat boss	Small, green eyes, redheads and brunettes, skinny
2015	Trapped Dead: Lockdown	Bigmoon Entertainment	Yes (main and secondary)	No	A black and four white skin, strong, muscular bodies	-
2014	FreeWay Fury	Vasco Freitas	Yes (main and secondary)	No	Tanned skin, thin, tall, muscular bodies	-
2014	Inspector Ze and Robot Clown: crime at the Lisbon Hotel	Nerd monkeys	Yes (main)	Yes (secondary)	White skin, beard, big nose, lows, tall, thin, fat	Skinny, slim waist, big breasts, redheads and brunette
2014	Soul Rush	Awesome	Yes (main)	Yes (secondary)	Small, Green Hair, Yellow Eyes (like aliens)	Big breasts, slim waist, thin, long hair, blond and brunette
2014	Let us Pray: surrender to hell	Beactive media	Yes (main)	No	Small, muscular body, thick eyebrows, tanned skin	-

Table 3: List of Portuguese video games that have characters with human traits.

As can be seen above, there is a diversity of companies and two independent creators. Nerd Monkeys and Bigmoon Entertainment were the companies that released the most video games in the time interval examined, two and three games respectively.

Of the seventeen games included, six do not present female main and secondary characters (*Backstorm, Syndrome, Talewind, Trapped Dead: Lockdown, FreeWay Fury and Let Us Pray: Surrender to Hell*). Most of the main characters are male, only five video games have female main characters.

Among the physical attributes of male characters, there is a very heterogeneous group: light and tanned skin, medium and low height, thin and muscular bodies. Regarding female characters, the predominant characteristics are white skin, long hair, big breasts and thin waist. The clothes used by most female characters are tight and/or low-cut, as we can see in Figure 1:

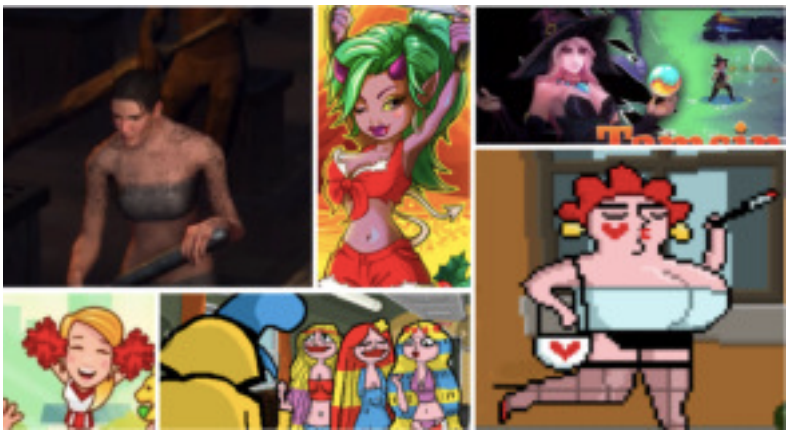

Figure 1: Portuguese video games characters (from left to right): Demons Age, Super Crossbar Challenge, Soul Rush, Inspector Ze and Robot Clown- the Intercity Killer, Strikers Edges and Inspector Ze and Robot Clown: crime at the Lisbon Hotel.

Three characters differ from the pattern above: Ágnes from *Smashtime* (Bica Studios), Ashlyn from *Hush: Into Darkness* (GS78 Studio) and Laël from *Strikers Edge* (Fun Punch Games). As main characters, Ágnes and Ashlyn personify children who, although small, have physical strength and, apparently, courage and intelligence. Laël, in turn, is an archer, described as a protector of nature. These are, therefore, characters who do not give in to the stereotypes of the hypersexualized, fragile woman or the princess who seeks to be saved (see Figure 2).

Figure 2: Portuguese video games characters (from left to right): Ashlyn (*Hush: Into Darkness*- GS78 Studio), Laël (*Strikers Edge*, Fun Punch Games), and Áges (*Smash time* - Bica Studios).

Overall, the female characters in Portuguese video games examined has sexualized bodies, something we do not see so often in male characters, with the exception of the *Demons Age* and *Trapped Dead: Lockdown* games (both from Bigmoon Entertainment) and *Lets us Prey: surrender to hell* (Beactive media) that bring robust characters, with muscular bodies. Note that, in general, sexualized bodies are defined by the degree to which the body is exposed and idealized to the detriment of personality attributes and intellectual capacities (Behm-Morawitz and Mastro, 2009).

In turn, a heterogeneous group of male characters with different physical characteristics prevails, in which there is no dominant profile, as we mentioned earlier. Therefore,

there are characters with muscular bodies as well as some thin ones, of low and medium height, light or tanned skin and few black skin secondary characters (see Figure 3).

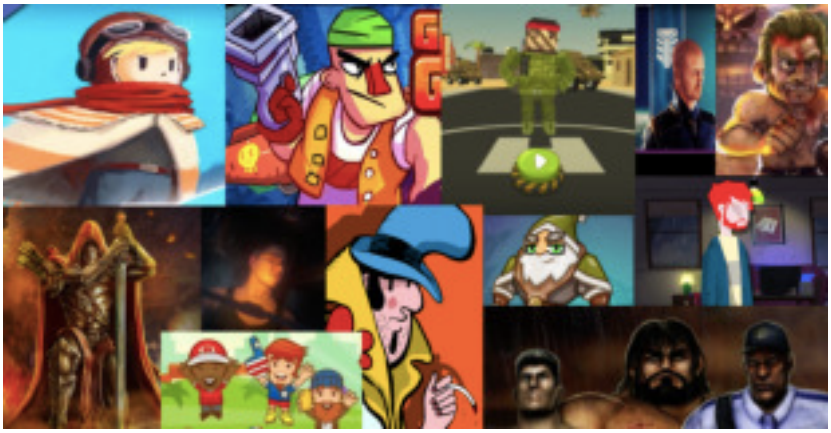

Figure 3: Portuguese video games characters (from left to right): *Talewind, Demons Age, Greedy Guns, Syndrome, Super Crossbar Challenge, Inspector Ze and the Clown Robot: The Intercity Killer, Backstorm, Smashtime, Dawn of Andromeda, Let Us Pray: Surrender to hell, Between me and the night and Trapped Dead: Lockdown*.

Many researchers have alerted to the negative effects on the self-concept of boys and girls who consume video games (Behm-Morawitz and Mastro, 2009; Dietz, 1998; Mikula, 2003; Miller and Summers, 2007; Paaßen *et al.,* 2017), especially when hyper-sexualization prevails and when the powers/force of the characters are exclusively associated with hegemonic racial and ethnic characteristics. In fact, the content of video games can spread stereotypes that communicate that certain physical appearances are associated with unrealistic and ideal patterns of beauty (Kondrat, 2015; Miller and Summers, 2007). They can also encourage acts of violence against certain racial and ethnic groups, as well as communicate that gender-based violence is harmless and acceptable (Miller, Rauch and Kaplan, 2016).

As in other research on this theme (Shaw, 2011; 2014), the video games analyzed have little diversity of characters with non-normative identities. However, we should not disregard the presence of some characters breaking the normative standards of gender, as verified in three games (*Hush: Into Darkness, Strikers Edge*, and *Smash Time)*. This seems to be an indication that companies are not completely closed to changes in their character design. In the next phase of this study, we intend to deepen this analysis, including the psychological attributes and powers of the characters.

Regarding the importance of the diversity of characters in video games, Shaw (2014) considers that feeling represented in a video game is important not only because the non-normative audience wants to see representations of themselves, but because they want other people to see representations of how they are. Shaw also suggests that video game producers don't need to worry about ostracizing the dominant audience if they choose to diversify the space of the game, since the homogeneous nature of the video game characters hasn't prevented the marginalized audience from playing it. By eliminating this economic concern, video game producers have a responsibility to fight for the diversity of characters due to the social value of the game, so that it can help marginalized people feel accepted.

Although this is only the analysis of some Portuguese video games (so we cannot generalize) those which were analyzed reflect the current situation of how the characters are physically characterized, not only with regard to gender but also regarding ethnic and racial diversity. We intend to extend this analysis in further publications.

Focus Group: results of the third phase.

A total of 20 students participated (nine women and eleven men). Regarding the number of participants in each group, we had four students in the first focus group, five students in the second and eleven in the third. The ages ranged from 18 to 35. Most were enrolled in the Games Design and Digital Animation courses. The other participants were enrolled in the Graphic Design, and Industrial Design courses.

According to the thematic analysis (Braun and Clarke, 2012), we identified the following themes: women gamer, appeal to visual versus politically correct, and gender asymmetries in professional choice.

These themes are interrelated and complement each other, so their reading should not be done outside the context of the objectives of this study. The organization in themes helped us to understand the meanings elaborated by the participants, that is, the "said" and "unsaid speech" that was highlighted during the data analysis.

Women gamer

This theme was developed from a set of students' narratives about the participation of women in gaming culture. For most students, there is a gender distinction due to the "sensitivity of interests" that is developed since childhood. The stimuli to video games are different for each one. Some excerpts show us their opinions:

"(...) I don't know if it's because (girls) don't play so much or because they don't have the skill or sensitivity that the boy has to play, or because they don't have so much time available because women end up doing more interesting things than men (laughs)" (Industrial Design girl student, focus group 2).

"(...) I think they (boys) give more value to certain things than women. I think girls and women, that's it, like to play, but they give more value to other things than boys... boys like watching games more and just staying in that" (Graphic Design girl student, focus group 2).

"(...) I think it's really the sensibility of interests, it's like the girl doesn't have so much life to waste the day or her days in games (...)" (Graphic Design girl student, focus group 1).

In these excerpts there is a strong representation of gender stereotypes in the gaming culture, in which the lack of interest of the female public in digital games is justified by attributes associated with the social construction of femininity and masculinity, such as sensibilities and differentiated skills.

Although "women have been a part of gameplay, development, and participation and have been integral to gaming narratives since the creation of character games in the 1980s, even so, gaming culture is considered male-centric" (Perreault *et al.*, 2016, p. 2). In the focus groups carried out, it was possible to identify how this male-centric gaming culture was reflected in the participants' speeches. Some girls said they felt very offended when playing on multiplayer gaming platforms.

According to Paaßen *et al.* (2017, p. 424), "the discrepancy between women and men self-identifying as gamers might be explained by a conflict between the gamer identity and the gendered identity of women". In the case of women, they "can only embrace either a gamer identity or a gender identity. This conflict is intensified by marketing practices of video game publishers which target a young, male consumer base".

In the focus group, girls talked more about the above topic than boys. In some cases, they gave examples of their own experience as a gamer. Overall, these opinions reflected scenes from their daily lives, in which it was common to see the absence of women gamers.

Appeal to visual versus politically correctness

This theme reflects the contradictory discourses present in the students' opinions about what they understood by gender stereotypes in video games. There was no consensus on what causes and maintains gender stereotypes. Their lines of thought remained between what was attractive to the gamer and the politically correctness.

"(...) they make a female character, which is so appealing to the man because it is beautiful, because it is this, because it is that…" (Game Design girl student, focus group 3).

"The image of the woman is used both to draw men's attention and, perhaps, there are girls who want to play with these beautiful characters" (Game Design girl student, focus group 1).

"(...) it's really because of... now that situation of... of... gender equality, they want there to be so much gender equality that it is even exaggerated, even forced" (Game Design boy student, focus group 1).

"(...) because now they are very trying to introduce everything to please everyone" (Graphic Design girl student, focus group 2).

For some participants, the gender debate in the gaming sector is a new phenomenon that result of politically correctness, which "*is negative for the games*". According to a boy student (focus group 3), *"it is necessary to have a reason to make a politically correct game because there are games where it does not make sense (...) when you want to please everyone the game does not sell".* Besides, *"when you exaggerate in political correctness, the game loses its identity"*.

Since the beginning of the 1990s, political correctness has been used as an umbrella term referring to an alleged practice of censoring language and opinions that reputedly represses truths, violates fundamental democratic rights by installing a language control. However, this knowledge has not prevailed, resulting in the consistent application of the term "political correctness" in a pejorative manner (Jahn-Sudmann and Stockmann, 2008, p. 150).

Regarding the gaming culture, in the last decade, we have seen several criticisms about a phenomenon Consalvo (2012) refers to as "toxic gamer culture". In particular, according to Paaßen *et al.* (2017), "feminist video game critics have faced massive backlash in the course of the recent #GamerGate debate". This debate "originated as a campaign demanding ethics in video game journalism, but it became dominated by a vocal group of gamers who responded to feminist critiques with extreme online harassment including rape and death threats" (p. 421). The focus group participants were unaware of the hostile sexism many female players have been facing. When we asked them how they perceived gender asymmetries in the gaming sector, some of them

classified this debate as a feminist cause. In addition, we note that gender asymmetries in the video game sector are not urgent issues for these students.

Gender asymmetries in professional choice

This theme includes the meanings elaborated on the presence of women in courses and in the video game industry. For some students, the reasons for the low female presence in this sector are justified as follows:

"(...) because I think it's very at that time that stereotypes start to get in… it is when we choose our direction because of many people… nobody would turn to me and said go to sociocultural or go to... artist, yes, design or something like that, everyone said I should go to something connected to computers, you're a boy (...)" (Game Design boy student, focus group 1).

"(...) if you still say: I'm interested in the master's degree in multimedia, they answer you are not a boy. They tell me so much, but you are not a boy. Why can't a woman do what a man does?" (Game Design girl student, focus group 1).

"(...) and... and... even at school, if a girl is good at math it's because she studies, if a boy is good at math it's because he's smart" (Game Design girl student, focus group 3).

"(...) as boys have this background from an earlier age, maybe then, girls who start later don't have this deepened interest (...) Girls, maybe, would like to go to these areas but don't deepen that interest, so there is... so they, maybe, won't be as successful as boys (...)" (Industrial Design girl student, focus group 2).

These opinions indicate how gender stereotypes are strong determinants at the moment of professional choice. While boys are stimulated to follow areas of technology and programming, girls are stimulated to follow areas of design and arts.

They also reported that their professional choice was directly linked to social pressure and, in some cases, ignorance of the digital games industry. Many of them said this area is strongly associated with the domain of game programming.

CONCLUSIONS

In this paper, we present the synthesis of an in-progress study and some results of its phases. The key design orientation of this research is the combination of quantitative and qualitative data in order to give a fuller answer to the gender issues both in the training context and in the digital game industry. Therefore, by combining and integrating different sources of data and methods, this study, still in an exploratory phase, aims to make an empirical contribution on gender asymmetry patterns in the sector and to provide a theoretical and methodological basis for future research on the subject.

According to the results of the three phases of this study, it was possible to conclude that:

- The training offered in the field of video games has increased considerably over a decade (2009-2019). This suggests that higher education institutions are aligned with the growth of the national (and international) gaming industry, which requires highly skilled professionals with specific higher education in gaming.

- There is low demand for girls in the higher education (in particular, undergraduate and master's degrees) in the area of video games in Portugal. This suggests that video

game training is not attractive for girls. On the one hand, they may not know how a professional in this sector performs; on the other hand, they may consider this an area which is better performed by boys.

- The number of male characters, both main and secondary, analyzed in the Portuguese video games produced between 2014 and 2018 is larger than the number of female characters. Among the physical attributes of the male characters, there is a very heterogeneous group: light and tanned skin, medium and low height, thin and/or muscular bodies. As for the female characters, light skin, long hair, thin hair, big breasts and thin waist are predominant. Hypersexualized female characters are more frequent than male characters.

- The results of the focus group suggest that gender asymmetries in the video game sector are not urgent issues. Many of them argued that the under-representation of women in gaming industry is a matter of sensitivities of interest.

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ENDNOTES

1Sustainable Development Goals 5- Targets 5.1, 5b, 5c. More information at https://www.un.org/sustainabledevelopment/gender-equality/.

2 For the purpose of this study the use of video games as a general term for gaming studies is appropriate due to its current usage to name higher education degrees in Portugal.

3 National Classification of Education and Training Areas.

4 More information at https://www.cig.gov.pt/acoes-no-terreno/projetos/engenheiras-um-dia/