The ethics of mayhem: A cognitive bias in computer games!- act 3

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Abstract
Assume that violent computer games influence gamers' moral reasoning is still a controversial assumption. The reason for this claim is quite simple: previous studies acknowledge paradoxical outcomes due to their nature. Therefore, this manuscript sheds some light over Portuguese and Polish gamers' retort regarding potential mayhem engagement and cognitive bias feedback. Likewise, the paper is divided into five key components: games (concept, philology and legislation); moral decision making (moral reasoning and moral intelligence); research design (aims and objectives and methodology); questionnaire layout (design, types of queries and limitations); and, empirical findings (section 1, section 2 and section 3).

Introduction
Computer games acknowledge dissimilar philology due to their several features, as for instance: scenarios, game mechanisms or groups of recipients (gamers) (Kücklich, 2003), as well as, resume cultural and social elements (Filiciak, 2006). Besides, some game creators are legendary for their boldness and it repeatedly occurs that their products stir up debates pertaining to racism, drug abuse, violence, cruelty, rape and mayhem engagement (e.g. *Grand Theft Auto*). As a result, regions like US, Japan or European Union have produced legislation concerning computer game market, despite abundant cases of moral ambiguities (interest groups actions) (Jenkins, 2006).
It is between these ambiguities that literature has been investigating the psychological and social outcomes of playing violent games (Sanford and Madill, 2007), namely mayhem engagement (emotional connotation to hostility) (Gotterbarn, 2008) and cognitive bias (cause upon social behaviour and decision making) (Kirsh, Olczak and Mounts, 2005). However, studies acknowledge paradoxical results regarding computers games violence (Durkin and Barber, 2002), or addiction (Cover, 2006).
Hitherto, literature seems to neglect if violent computer games negatively persuade gamers' moral reasoning, despite the vast work concerning moral development (Reynolds and Ceranic, 2009), or even moral competence (Podolskiy, 2008). This manuscript (act 3) aims to contrast Portuguese and Polish gamers' retort regarding potential mayhem engagement and cognitive bias feedback, while acts 1 and 2 illustrate each country empirical evidences. For that, the work of Schonlau, Fricker and Eliott (2001) in conducting web questionnaires (including cross-cultural) will act at some extent as praxis (execution procedures).

Games
Concept
A computer game is basically a game activated by a computer, in which gamers control the items visible on the screen just for fun (Feibel, 2006). Although, what it means computer or video games? According to Esposito (2005), a videogame resumes an *audiovisual apparatus* with the intention to play, as well as, may involve a story.

Philology
Computer games philology reveals a lack of consensus, although following Squire (2003) exist the following game categories: casual, entail less complex controls and the game itself

which implies popularity and accessibility (International Game Developers Association, 2006); skill, facilitate players' mental or physical development (Carswell and Benyon, 1996); strategy, the designer produces rules and objectives and the players decide about their strategies (Pedersen, 2003); simulation, mock-up of an actual or imaginary system (Pedersen, 2003); training, help tutors to uphold participant interest, as well as, it implies a enjoyable and fun training (Kirk and Belovics, 2004); educational, games which purpose is an explicit educational goal (Aldrich, 2009).

Legislation

European and US games legislation embraces two components: rating about age appropriateness; and, content description (Pan European Game Information, 2011; Entertainment Software Rating Board, 2011). Age appropriateness in European and US rating systems acknowledge some differences (table 1), although the bureaucratic process as regards to rating is similar. Content description qualification in both regions refers to the absence of: violence in its different forms (blood, physical contact and aggressive behaviour); sexual themes and nude activities; obscene language; real gambling (use of real cash); promotion or use of drugs, alcohol or tobacco; scary scenes.

Table 1. Rating system differences about age appropriateness

Pan European Game Information	Entertainment Software Rating Board
Age of 3- content suitable for all age groups. Is acceptable comic violence and it resumes the total absence of improper content	Age of 3- designed for ages of 3 and older, since parents will not find inappropriate content
Age of 7- previous games that include some content description features (e.g. visual/audio scary scenes and partial nudity)	Age of 6- content has to be appropriate for ages 6 and older. Comprises fantasy violence or soft language
Age of 12- content description features embrace fantasy violence and nudity in a slightly more graphic nature	Age of 10- it may enclose more fantasy violence, infrequent obscene language and suggestive scenes
Age of 16- when violence, sexual content is similar to real life context. It may also consist on bad language and criminal activities	Age of 13 (teen)- violence, suggestive themes, minimal blood, gaming simulation, and infrequent use of obscene language is possible
Age of 18- adult rating resumes all content description features, as well as, it is compulsory to indicate the reasons for this rating into the game package	Age of 17- it allows extreme violence (including blood), sexual content and obscene language
	Age of 18 (adults only)- it encompasses long scenes of intense violence, sexual content and nudity

Moral decision making

Moral reasoning

Moral decision making is an intricate process as literature recognises; even so, Jones (1991) argues that moral reasoning is a blend between moral intensity (MI), and moral sensibility (MS). MI refers to "the extent of issue-related moral imperative in a situation through six constructs" (Jones, 1991: 372): degree of consequences (trade-off among positive or negative situations resulting from the moral act); social consensus (extent of social agreement about the ethical validity of an action); probability of effect (action and circumstance potential

occurrence); temporal immediacy (timeline involving the action and its consequences); proximity (social, cultural, psychological, or physical intimacy of the moral agent concerning other individuals); concentration of effect (impact against the amount of individuals affected). MS is the individual cognitive process (competence achievement) (Jones, 1991), which is highly influenced by the work of cognitive development of Piaget (1965). Moreover, moral competence is "the capacity to make decisions and judgments which are moral (i.e., based on internal principles) and to act in accordance with such judgments" (Kohlberg, 1964: 425).

Moral intelligence

From the above information, Reynolds (2006: 241) argument that "stages of moral decision making may not be discrete elements of a formulaic thought process but may actually be interrelated in a very complex way" is clearly reasonable, as well as, it resumes the concept of moral intelligence. Moral intelligence resumes the operational interaction among three levels of moral conduct (action, cognition, spirituality) (Panã, 2006).

Research design

Aims and objectives

The main research question endeavours to comprehend if violent computer games persuade negatively gamers' moral reasoning through mayhem engagement and cognitive bias. Thus, the following aims and objectives arise: understand which games individuals consider violent; reveal which characteristics individuals acknowledge in violent games; comprehend the potential relationship among moral reasoning and mayhem engagement by gender and age; and, reveal possible impacts of two national cultures (Portuguese and Polish).

Methodology

Research methods

Qualitative research refers to social and cultural phenomena (Gilbert, 2001), so the researcher deals with a little number of cases and several variables. Besides, the researcher's intuitions and reactions are frequently significant data sources (Myers, 2009), because data collection involves it, as well as, the participants in an organic way (Bryman and Bell, 2007) and induces several angles of analysis (Creswell, 2003). Hence, the qualitative analysis highlights if computer games violence may influence gamers' moral decision making in their cultural environments.

Interpretivism resume a socially constructed reality through consciousness and shared meanings, which influences and is influenced by the context (Myers, 2004), and the outcome of an interpretive investigation is to understand an event rather than figures and percentages (Walsham, 1993). In this case, shared meanings embrace the subjectivity of Portuguese and Polish cultural contexts, as well as, the interpretation of questionnaires results.

A multi-case study approach (Yin, 1994) is considered in order to allow a comparison between Portuguese and Polish gamers, because it encompasses every day circumstances in real contexts (Cohen, Mannion and Morrison, 2007).

Data collection and analysis

Wood, Griffiths and Eatough (2004) explore the importance of online questionnaires into computer games empirical research, so the authors' option is easily validated. Besides, the questionnaire components (see layout section) allow observing possible contradictory opinions and beliefs (interpretative flexibility) (Doherty, Combs and Loan-Clarke, 2006).

Regarding data analysis, multiple choice queries resumed a numerical approach (Creswell, 2003) in spite of the philosophical, cultural and even psychological concern (Alaranta, 2006) of this statement. And, ask for agreement queries implied a categorical aggregation through

open coding (Stake, 1995) since the process of meaning making is complex, which was later re-read in order to understand potential connections amongst divergent perspectives. However, in order to avoid criticism the authors introduce two examples, one for each form of analysis: 64% male vs. 35% female respondents in Portuguese questionnaires (numerical approach); and, "first scenario was just a game, second scenario was real life" (Q59_PL_M, real life vs. virtual life) (open coding, which combines questionnaire ID_Country_Gender, content analysis).

Questionnaire layout

Design

According to Toepoel, Das and Soest (2006) visual and verbal cues add meaning to a web questionnaire, so the authors have complied with this assumption in order to achieve a higher response rate. In spite of this assumption is vital to shed some light over the questionnaire layout (sections and their questions): section 1, aims to recognise the gamers' profile, namely as regards to gender, age, number of gaming years, daily hours of gaming, potential amusement with violence in computer games, and if these play violent games and how many hours (daily); section 2, intends to understand which games are considered violent (list) and their characteristics, as well as, until what extent the gamer agrees with the existing legislation (age categories) for playing violent games; section 3, resumes game scenarios versus real life contexts with similar violent circumstances in order to understand if the respondent sustains its moral decision making. Game scenarios "design" highlights some potential cases when playing for example *Postal 2* (YouTube, 2008), or *Grand Theft Auto* (YouTube, 2009); and real life contexts "design" considers several daily examples around the world (Zabjek, 2011; Hickey, 2011).

Types of queries

After debating the web questionnaire layout, it is vital to understand the relationship among each section and the type of queries. Therefore: section 1 and 2 encompass multiple choice queries, because the respondent has to reflect upon his profile and violent games characteristics; section 3 resumes a blend of multiple choice and ask for agreement queries, since the respondent has to order his moral decisions from 1 (immediate) to 6 (final decision) in extreme situations (game vs. real life) (multiple choice), as well as, to justify their behaviour through an ask for agreement query.
The authors' choice is validated through the work of Lee (2006: 762), since "each potential question should be screened with respect to (1) how the answers to it will be analysed, (2) the anticipated information it will provide, and (3) how the ensuring information will be used".

Limitations

Wright (2005) refers that web questionnaires reveal some advantages and disadvantages, as for instance: access to unique populations, time and cost (advantages); sampling issues, access issues (disadvantages). In this case the most representative disadvantage is sampling issues, namely as regards to respondents age and samples size. Respondents age vary from 15-30 years in Portugal vs. 18-25 years in Poland, as well as, the Portuguese sample size is significantly large than the Polish one (125 vs. 64 responses). Both disadvantages are consistent with Wright's argument regarding sampling issues in web questionnaires. Another important limitation is the harmonization process between source and target language which requires some adaptations (Harkness *et al.*, 2010). This process may generate some lost of sensitive meaning, as the questionnaire translation from English to Portuguese and Polish acknowledge, as well as, vice versa for the answers analyses.

Empirical findings

Section 1

Questionnaires sampling resumed the following results:

- Gender- 64% of male and 35% female respondents in Portugal, contrarily to the 33% and 64% in Poland (equal order);
- Age- Portuguese gamers' sample acknowledged 26% (15-17 years old), 37% (18-21 years old), 14% (22-25 years old), and 22% (26-30 years old). Again Polish results revealed significant differences, because only two age groups exist: 41% (18-21 years old) and 59% (22-25 years old);
- Years of gaming- the results were consistent with the age groups. Whilst Portuguese results encompassed 10% (0-4 years), 26% (5-9 years), 32% (10-14 years), 18% (15-19 years), 5% (20-25 years), 9% (not available); Polish outcomes resumed 39% (0-4 years), 31% (5-9 years), 28% (10-14 years), 2% (15-19 years);
- Average gaming hours per day- 59% of Portuguese gamers' devoted less than an hour to gaming against 28% in Poland. In addition, more than four hours of playing embraced only 2% in Portuguese questionnaires and 20% in Polish ones;
- Potential enjoyment with violence in games- the empirical results illustrated 45% positive answers for Portugal and 33% in Poland, despite 33% of Polish gamers did not answered (not available);
- Play violent games- Portuguese play relatively less violent games than Polish gamers' (55% vs. 72%);
- Average gaming hours per day of violent games- contrarily to generic playing hours 38% of Portuguese gamers played less than an hour vs. 50% in Poland. Although, more than four hours of gaming represented only 1% in Portugal in opposition to 16% in Poland. This evidence was also verified in 2-3 and 3-4 hours of playing, as the authors demonstrate: 2% (Portugal) vs. 12% (Poland), and 0% (Portugal) vs. 8% (Poland) correspondingly.

Nevertheless, is vital to detail each county result by gender and age group to permit a better enlightenment regarding each query. It was interesting to denote that in both countries female gamers exhibited less years of gaming, although in Poland this scenario is even clearer: 91% female within the group of 0-4 years; and, 74% female to 5-9 years. In Portugal the results showed 75% for 0-4 years and "only" 53% concerning 5-9 years. Polish outcomes confirmed the importance of the 22-25 years group within the sample, since its value is always higher in every group for gaming years (except 0-4 years), and Portuguese ones clearly related age with years of gaming (e.g. the group between 26-30 years old represented 45% and 66% respectively in 15-19 and 20-25 years of playing games).

On the topic of average gaming hours per day Portuguese males encompassed always higher values with huge differences, as for instance: 1 < hours < 2 (84%), 2 < hours < 3 (71%), 3 < hours < 4 (100%), and greater than 4 hours (100%). It was also interesting that the age groups 15-17 and 18-21 were the most representative above 2 hours of gaming. The analysis of Polish questionnaires highlighted opposite results, since females spend more time gaming until 3 hours: 83% until 1 hour, 71% amid 1-2 hours and 55% between 2-3 hours. Age group distribution is similar for less than hour until two hours of gaming (around 50% each), but into the remaining options their behaviour is inverse: 2 < hours < 3 (64% for 18-21 years old) and 3 < hours < 4 (62% for 22-25 years old).

When confronted with a query about their potential amusement with violence in computer games, 45% of positive answers for Portugal and 33% in Poland, despite a high rate of non-answers in Poland (33%). Male gamers encompassed for positive answers 84% in Portugal

and 72% in Poland, as well as, age groups analysis for both countries was similar. Positive answers engaged higher values for youngsters: 15-17 years old (36%) and 18-21 years old (29%) (Portugal) vs. 18-21 years old (65%) (Poland); and, negative responses to oldest age groups: 22-25 years old (44%) and 26-30 years old (25%) (Portugal) vs. 22-25 years old (61%) (Poland).
Play violent games corresponded for each gender in Portugal (78% male vs. 22% female), contrarily to Poland (41% vs. 57%). This scenario was diverse concerning the negative answer: 41% male vs. 57% female (Portugal), and 83% females in Poland. Again these results were consistent with generic data, as well as, age groups structure.
When asked about gaming violent games (in hours per day), Portuguese respondents acknowledged incredibly similar results to "regular" gaming hours. Yet, Polish respondents choices were completely unlike! Males played more in 1 < hours < 2 (55%), 2 < hours < 3 (63%) and greater than 4 hours (70%), although age group distribution is equal to "regular" gaming hours.

Section 2
The first aim was to introduce an extensive list of games (according to their philology) in order to respondents' score which were considered violent. Hence, Portuguese gamers top five choice was: Resident Evil (48%), Mortal Kombat (47%), Assassin's Creed (43%), Killzone (36%), and Dead or Alive (35%). Grand Theft Auto (GTA) and Call of Duty obtained values around 30%, and games like Hitman, Quake, Halo, Farcry, Manhunt or Postal were rated just by 15 to 20% of the respondents. Moreover, non-violent games top 5 included Sonic (1%), Super Mario (1%), Sims (2%), Rugby (1%) and NHL (2%).
The top five for violent games by Polish gamers were Hitman (69%), Mortal Kombat (69%), Killzone (67%), Dead or Alive (64%) and Postal (56%). Even so, games such as Quake, Uncharted, CRYSIS, Manhunt, Fallout and Call of Duty were rated above 45%! Pertaining to the non-violent their choice embraced Rugby (17%), Super Mario (20%), Soul Calibur (22%), Sonic (33%) and Sims (39%).
Similar results were obtained for violent games features among both countries in spite of a different order for the top three choices: high levels of massive destruction (54% Portugal vs. 70% Poland); graphical realism (61% Portugal vs. 69% Poland); blood consistency (59% Portugal vs. 59% Poland). In addition, the remaining options include: death consistency (42% Portugal vs. 45% Poland); language and obscene content (36% Portugal vs. 42% Poland); and, absence of rules for inappropriate behaviour (32% Portugal vs. 36% Poland); however, a higher level of detail for each option by gender and age is required.
Portuguese results for massive destruction acknowledged 57% for male gender and the most representative age groups were 15-17 and 18-21 years old with almost 80% (39% each age group). Female gender with 60% was the key group in Polish gamers, and the age groups presented a similar behaviour, although is vital to bear in mind their relative weight within the sample.
Graphical realism was considered by 63% of Portuguese males and 59% of Polish females, and age groups analyses were extremely similar with massive destruction: around 90% for Portuguese gamers among 15-17 and 18-21 years old; and, 50% for 18-21 and 22-25 years old (Polish females). With reference to blood consistency Portuguese gamers pointed out 60% (male) and Polish 47%, and again age groups analysis were consistent with the previous results (75% of age groups 15-17 and 18-21 years old in Portugal vs. approximately 50% for 18-21 and 22-25 years old).
The absence of rules for inappropriate behaviour was dominated by male gender in Portugal (67%) vs. Poland (52%), as well as, in death consistency (67% Portuguese vs. 55% Polish). The tendency was reverted again in language and obscene content, since it was verified that

from the 36% of Portugal generic data 71% corresponded to males. This scenario is unlike for Polish gamers due to the contribution of female gender (52%). The outcomes about age groups were extremely similar in these three options:

- Portugal- around 90% for 15-17 and 18- 21 years' old (absence of rules); around 85% for 15-17 and 18- 21 years' old (death consistency); and, around 85% for 15-17 and 18- 21 years' old (language and obscene content);
- Poland- almost 50% for 18-21 and 22-25 years old (absence of rules, death consistency and language and obscene content).

Afterwards, gamers commented the existing European rating system through two analytical dimensions: agreement with the rating legislation; and, a negative answer implied to refer which assumptions required attention. With reference to legislation Portuguese gamers have demonstrated a higher rank of agreement (76%), which is supported primarily by male gender and age groups between 15-17 and 18-21 years old. 61% of Polish respondents claimed a negative answer; and this value was substantiated by both genders, as well as, a similar age group distribution. This contradictory tendency occurred into the assumptions that required attention, since Portuguese results revealed greater concern with the correspondence between ages vs. violence (86%), cultural incompatibilities (86%), and excessive violence (55%); and, Polish gamers focused their attention on game designers responsibilities (51%), insufficient legislation (41%) and correspondence between ages vs. violence (41%).

Section 3

As previous explained, in this section gamers were confronted with moral decisions making for violent circumstances in games and real life. In this case each respondent needed to qualify his/her decisions from 1 (immediate) to 6 (final).

Table 2. Scenarios for moral decision making

Context	Scenario	Options
Game 1	The character is walking on a semi-abandoned street, having at its disposal all the game tools (hammer, fuel, lighter to set fire, weapons, etc.). Assuming that character, when encounter an elderly, what would you do?	1) Dump fuel and set fire on the character 2) Do absolutely nothing 3) Smash completely his head with a sledgehammer 4) Give a series of punches and kicks 5) Use a bazooka to exterminate him 6) Give a kick
Game 2	The character is walking along the street and resolves to steal a police vehicle through carjacking. Again, you can use all the game tools. Assuming player role, what actions would you perform?	1) Do not performed carjacking 2) Proceed with carjacking and beat the cop 3) Beyond carjacking and beat, use the vehicle for run down pedestrians 4) Steal another car and exceed speed limits 5) I rather use a machine gun to destroy the car 6) Carjacking, beat, run down pedestrians and destroy a store with the car
Real life 1	Imagine that you are a criminal that decides to assault an old man. Consider that you are in possession of a machete, a weapon and sulphuric acid. What would you do?	1) Regret and do not perform the robbery 2) Use a machete to exterminate him 3) Give a series of punches and kicks 4) Smash completely the elderly head, and push it repeatedly against a wall 5) Give a kick 6) Dump sulphuric acid on him

Real life 2	Imagine that you are a drug addict that needs to suppress such addiction. So, your intention is to do carjacking nearby traffic lights and preferably at dusk. Yet, you decide to carry a machete, a weapon and sulphuric acid. What would you do?	1) Expecting lower possibilities, steal other car 2) Do carjacking, beat and run over the cop that tries to intervene 3) Perform carjacking, beat and run the cop, use the car to run down pedestrians 4) Beyond carjacking and beat, you perform other thefts 5) Quit carjacking, as well as, drug addiction 6) Proceed with carjacking and beat the driver

Gender analysis recognized fascinating results: Polish decisions were similar to Portuguese in real life contexts, and always more violent in gaming (lower for females) (table 3). Not available was around 30% for Portuguese sample in each scenario vs. 5% in Polish results.

Table 3. Game scenarios results

Context	Country	Gender	Empirical results
Game 1	Portugal	Male	Do absolutely nothing; give a kick; and, give a series of punches and kicks were the top choices. Interesting that dump fuel and set fire obtained 19 answers as decision 6 (final decision)
		Female	Do absolutely nothing; use a bazooka; and, dump fuel and set fire (top choices). Again, the ultimate decision was dump fuel and set fire
	Poland	Male	Use a bazooka; dump fuel and set fire; and, smash completely his head (initial decisions). Contrarily, do absolutely nothing was the fifth decision
		Female	Do absolutely nothing; give a kick; and, smash completely his head (initial decisions). Give a kick was the latest decision
Game 2	Portugal	Male	Do not perform carjacking; steal another car and exceed speed limits; and, I rather use a machine gun (early decisions). Last decision was also do not perform carjacking
		Female	Steal another car and exceed speed limits; I rather use a machine gun (top choices). Do not perform carjacking (final decision)
	Poland	Male	Beyond carjacking and beat, use the vehicle for run down pedestrians (first and third decision). The ultimate decision was again the less violent option
		Female	Do not perform carjacking; steal another car and exceed speed limits; and, beyond carjacking and beat, use the vehicle for run down pedestrians (initial decisions). Carjacking, beat, run down pedestrians and destroy a store with the car (last decision)
Real life 1	Portugal	Male	Regret and do not perform the robbery; give a kick; give a series of punches and kicks (early decisions). The final decision was dump sulphuric acid
		Female	Similar to males retorts
	Poland	Male	Equal to Portuguese outcomes
		Female	Remarkably identical to the previous answers

Real life 2	Portugal	Male	Quit carjacking and drug addiction; expecting lower possibilities, steal other car; proceed with carjacking and beat the driver (top choices). Carjacking, beat and run the cop, use the car to run pedestrians (last decision)
		Female	Again equal to males answers
	Poland	Male	Once more decisions similar to Portuguese evidences
		Female	Quit carjacking and drug addiction; beyond carjacking and beat, you perform other thefts; carjacking, beat and run the cop, use the car to run pedestrians (top choices). Final decision was again the second option

Age group analysis resumed again some fascinating results: in both countries the youngest age groups comprised the most violent option (in each potential decision), which is consistent with the results with reference to gaming hours for violent games.
Finally, the ask for agreement query that allowed gamers to justify their options for each scenario engaged the following open coding results for both countries: aversion to violence (25 Portuguese vs. 22 answers for Polish gamers); real life vs. virtual life (12 Portuguese vs. 28 Polish questionnaires); regret due to impetuous actions in real life (10 Portuguese); games without social constraints (29 Portuguese vs. 14 Polish respondents); violent behaviour consistent with game objectives (5 Portuguese vs. 2 answers for Polish gamers); and, stress relieve (9 Portuguese vs. 5 Polish respondents).

Table 4. Answers content analysis

Answers	**Open-coding**
"I cannot imagine such circumstances"	Q73_PT_M, aversion to violence
"I am not a fan of any kind of violence in real life and games"	Q70_PT_F, aversion to violence
"I do not like violence: in games and also in life"	Q31_PL_F, aversion to violence
"I think it is my nature- I do not like killing, even in computer games"	Q64_PL_F, aversion to violence
"Despite playing violent games that does not imply violent behaviours in real life, since conscience is an individual process (...)"	Q116_PT_M, real life vs. virtual life
"Because the game is a virtual reality and I would not hurt anyone in real life"	Q70_PT_F, real life vs. virtual life
"In a video game I can use the bazooka, but in real life unfortunately I cannot"	Q51_PL_M, real life vs. virtual life
"There is no game without the violence, although in real life is different"	Q63_PL_F, real life vs. virtual life
"(...) In extreme scenarios, as for instance overall panic or surviving, instinct may possibly reveal the options"	Q30_PT_M, regret due to impetuous actions in real life
"(...) due the pressure of a moment the initial decision may indulge reflective and violent behaviours (...), and afterwards regret would occur"	Q106_PT_F, regret due to impetuous actions in real life
"Since I like to drive fast, despite of rarely performing it, in GTA such scenario is possible (...)"	Q117_PT_M, games without social constraints
"Because into the game I do not have punishment, contrarily to real life"	Q57_PT_M, games without social constraints
"In a video game is good to act brutally and effectively,	Q62_PL_M, games without

but in real life you cannot kill other people"	social constraints
"I will go to jail if similar things done in computer games occur in real life"	Q29_PL_F, games without social constraints
"Decision making in virtual contexts (game) is to obtain more points or get keys (...)"	Q30_PT_M, violent behaviour consistent with game objectives
"Regarding GTA scenario, I have chosen such order due to game objectives and its missions (...)"	Q109_PT_M, violent behaviour consistent with game objectives
"If it is a game, you simply do some actions in order to go to the next level (...)"	Q35_PL_M, violent behaviour consistent with game objectives
"In games you should follow the scenario. If games introduce options for brutal actions, you must do it because you gain points for it"	Q46_PL_M, violent behaviour consistent with game objectives
"These games allow breaking free from reality, since any normal person has the ability to distinguish what is real or not (...)"	Q120_PT_M, stress relieve
"Video games help people limit their brutal nature, so they are more peaceful in real life"	Q52_PL_M, stress relieve

A closer look highlighted likeness across countries gender analysis, since: aversion to violence was extremely intense into female gamers; stress relieve was simply a male answer, as well as, violent behaviour consistent with game objectives; and, the remaining responses were referred by both genders. Besides, each "gender coding" was consistent with age groups previous outcomes: aversion to violence was rated over 85% in Portuguese females (15-17 years old- 20%, 18-21 years old- 23%, 22-25 years old- 22%, 26-30 years old- 21%), and 90% in Polish ones (45% in each age group); regarding stress relieve, Portuguese male gamers underlined 15% (15-17 years old), 18% (18-21 years old), and around 30% (for 22-25 and 26-30 years old); and, younger gamers obtained higher values for consistency with game objectives (equal to gaming hours). Gamers between 15-17 and 18-21 years old corresponded to 80% in Portugal and 65% in Poland (second group only).

Discussion and conclusion

This manuscript identifies some remarkable empirical findings about Portuguese and Polish gamers' latent mayhem engagement and cognitive bias. The assumption is validated through four arguments: literature; research design; questionnaire layout; and, empirical findings. The ambiguities that former studies exhibit has been recognized, as the subsequent examples underline: *"I'd rather help the old man, buy a beer and play with him"* (Q9_PL_F, real life vs. virtual life) and *"You must be aware that Postal is a game, and if you do it, is for fun. These behaviours must not exist in real life, despite some persons do not realize it, and replicate their gaming behaviours"* (Q46_PT_M, real life vs. virtual life). Yet, the impact is minimal due to the empirical findings richness, as well as, research design and questionnaire layout positive response. Comments will be welcome during the presentation in ETHICOMP.

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