DO VIDEO GAME RATING SYSTEMS FURTHER ENABLE NEGATIVE EFFECTS OF VIDEO GAMES?

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Video games are a form of an entertainment that are enjoyed by many around the world. Lenhart, a senior research specialist at the Pew Internet & American Life Project, et al. (2008) report that 97% of American teens between the ages of 12 and 17, inclusive, play video games, of which 99% are boys, and 94% are girls (p. 1-2). These numbers are from 2008, and since then, video games have only become more popular, likely increasing from the 97% figure provided. With such a great consumption of video games, however, comes a great risk. Violent video games have been shown to sometimes have negative effects on those who play them. Rating systems do exist in an attempt to moderate the content of video games and suggest appropriate age ranges for players. This STS research seeks to understand what elements of video games contribute to the ratings that they receive in the current systems and how effective the rating systems are. The effectiveness of video game rating systems will be assessed using the co-production framework. The research is motivated by the sheer popularity of video games and the lack of effective enforcement of rating systems.

For the technical project, the capstone team is developing an assessment system for The Sum nonprofit oragnization to facilitate taking the Power of Difference Assessment (PDA). The PDA helps to reveal demographic biases in those who take the assessment. After completing the assessment, participants can then receive consultation from a trained consultant to better learn about their biases and how to better communicate across various demographics. Due to the effects that video games may have on the social behavior of the players, video games may also impact the way that people view certain demographics, which would directly impact the PDA results of the players.

NEGATIVE EFFECTS OF VIOLENT VIDEO GAMES

Video games are extremely popular as an entertainment medium. As mentioned earlier, 97% of American teens between 12 and 17 play video games, according to a Lenhart et al.'s study (2008). Teens are not the only ones playing video games, though. The video game industry has players of all ages and has become an extremely profitable market, with video game sales in 2017 reaching a global value of 104.57 billion dollars (Gough, 2018). For reference, the movie industry was estimated to have a revenue of 64.41 billion dollars (Watson, 2019). The value of the video game industry is huge, and thus video games can impact many people's lives on a global scale.

However, video games have the capability of instilling negative social behavior among those who play them. One of the more recent effects that Iowa State University developmental psychology professor Douglas Gentile et al. (2017) have elaborated on is Internet Gaming Disorder (IGD) (p. 81). IGD is still being researched today, so there is no comprehensive list of potential effects, but known effects include depression, academic decline, worsened relationships with friends and family, and increased aggression (Gentile et al., 2017, p. 82). IGD clearly has several severe consequences which negatively impact the social behavior of people who play the games.

Internet Gaming Disorder is not just the only negative effect that video games can have, though. Games that are already deemed as violent have further negative effects, according to Anderson, an Iowa State University professor with the department of psychology, and Bushman, an Ohio State University professor with the School of Communication (2001) in their analysis of past studies on the subject (p. 357-358). These negative effects include reduced prosocial behavior, as well as increased aggressive behavior (p. 357-358). Anderson and Bushman mapped

the Single-episode General Aggression Model to one that relates to long-term effects of violent video games, as shown in Figure 1 below. In general, the repeated play of these violent video video games leads to an increased display of aggressive traits, such as more aggressive beliefs and attitudes or desensitization to aggression. These factors all contribute to a more aggressive behavior in the individual. This more aggressive personality then manifests in the social situations the person finds themselves in, which is likely to negatively impact their social interactions.

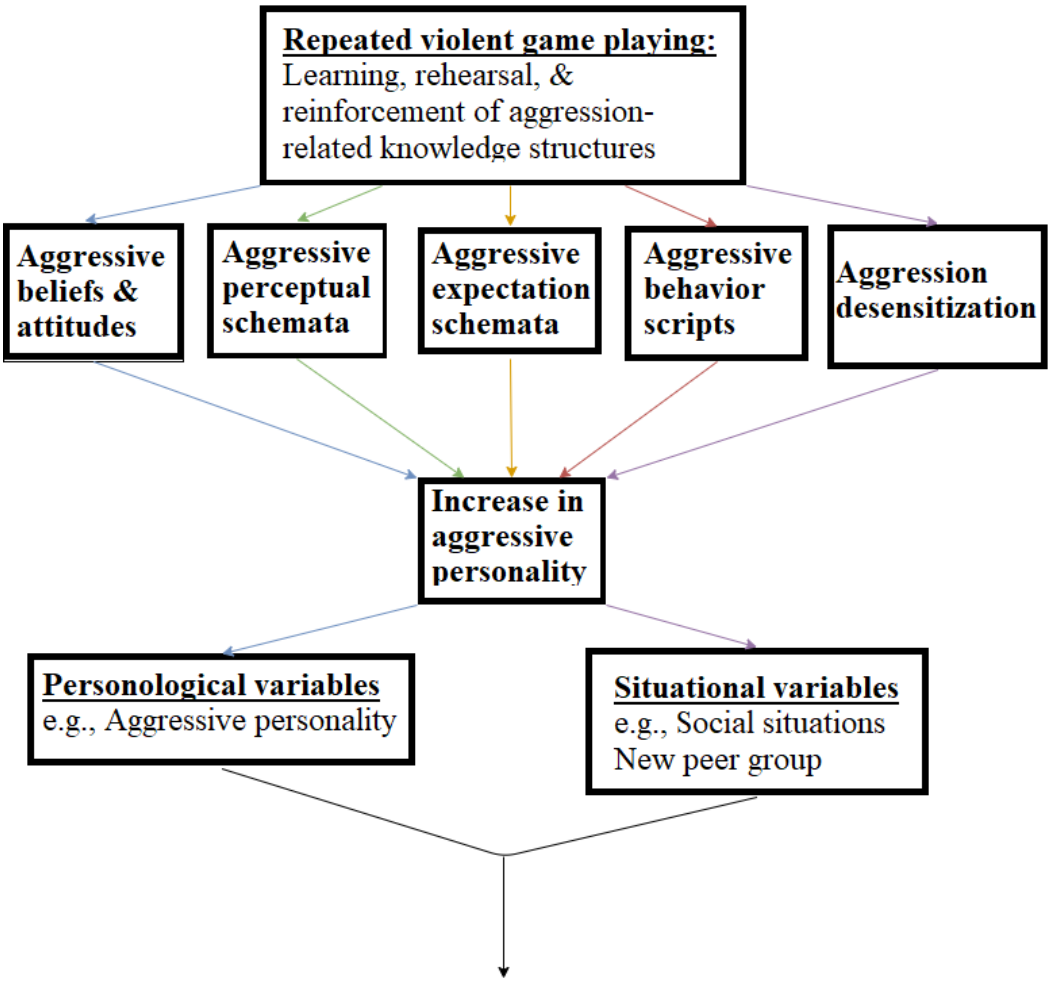

Figure 1: Multiple-Episode General Aggression Model: As a person continues to play violent games, they are exposed to more opportunities to display more aggressive behaviors. As a result, the person may have a more aggressive personality (Anderson & Bushman, 2001).

Not all research has come to the conclusion that violent video games have negative effects on the social behavior of players, though. Research conducted by Adel Agina, a member of the University of Tripoli faculty of medical technology, and by Robert Tennyson (2012), a professor of educational psychology and technology at the University of Minnesota, found that violent arousal has a positive effect on children's development (p. 787). This positive effect is related to children's self-regulation and thinking aloud skills. However, even if violent video games have a positive effect on children's development, they still have other negative effects. For violent video games to be useful in aiding children's development, there would need to be a safe way to transfer information from violent arousal into a proper learning environment, which is a future area of research for the topic (p. 787).

STATUS QUO OF VIDEO GAMES RATING SYSTEMS

It is clear that video games have the potential to negatively affect social behavior, but how exactly do video games begin to have violent content in the first place? To begin understanding that, it is important to firmly establish what a video game is. Video games are generally a form of interactive digital entertainment that can be played on a variety of platforms, such as on a computer, phone, or gaming console (Owen, 2016, para. 2). In an attempt to restrict who can play what games, all video games are assigned content ratings by organizations. These organizations were formed by video game console manufacturers, developers, and publishers back in the 1990s and early 2000s, and are self-regulating, operating without government interference. Two video game rating organizations will be focused on, one of which is the Entertainment Software Rating Board (ESRB), which is used widely in North America. The ESRB splits games into the following five categories: Everyone (E), Everyone 10+ (E10+), Teen (T), Mature 17+ (M), and Adults Only 18+ (AO) (Ratings, 2020). Another rating system is the

Pan European Game Information (PEGI), which is used in the European Union, as well as Israel. The PEGI rates games as PEGI 3, PEGI 7, PEGI 12, PEGI 16, or PEGI 18, where the number corresponds to the suggested minimum appropriate playing age ("What do the Labels Mean", 2017).

Video games fall into these categories for their respective rating systems based on several reasons, but the primary reason is the artistic choices the developers make during the creation of the game. For example, when developers decide to design a game with blood and gore as opposed to simple cartoon violence, they are accepting that it will be more likely that the game will receive a higher age rating. Commonly, the higher an age rating a game receives, the more likely it is to have violent content. So, a game rated M is more likely to contain violent content than one rated T or E10+. Likewise, a game rated PEGI 18 is more likely to contain violent content than one rated PEGI 12 or PEGI 16.

The ESRB and the PEGI both exist to fulfill the same purpose, which is to assess the content of games and assign content ratings to those games. However, there are some differences in how the two systems go about accomplishing that feat. This research will explore how video games are being rated in the two different systems, as well as how appropriate the ratings are. In understanding how games are being rated and why they are rated in certain ways, it can become easier to understand the negative effects that some video games may have.

As it is now, the two systems are only consistent with the 18+ age range, which is represented by Adults Only and PEGI 18+. However, the AO rating is an extremely rare rating to be given by the ESRB. Stores will not carry any games rated AO, and many big publishers like Microsoft and Nintendo will not give them an official release on their consoles (Kuchera, 2014). Generally, the ESRB gives a rating of Adults Only to games that contain sexual imagery or

nudity (Kuchera, 2014). Content that is specifically violent has very little impact on whether a game is rated AO or not. This causes games that are very violent, but devoid of sexual content, to be given a Mature 17+ rating, which pushes the boundary of the M rating to be more and more extreme (Kuchera, 2014). Developers cannot afford for their games to be rated AO, as the rating will stifle any profits that would be made for the game. Thus, essentially no games receive this rating. If a game was initially assigned an AO rating by the ESRB, the content is typically revised until it meets the standards of an M rated game.

The lack of the usage of the 18+ rating is unique to the ESRB. In the 2015 PEGI annual report, the organization released the distributions of PEGI ratings for all video games, as seen in Figure 2 below. Since 2003, there have been a total of 1,766 video games rated PEGI 17 out of a

AGE CLASS	2015	PERCENTAGE	TOTAL SINCE 2003	PERCENTAGE
3	427	23%	10718	42.2%
7	486	26.2%	4017	15.8%
12	501	27%	5668	22.3%
16	237	12.8%	3218	12.7%
18	204	11%	1766	7%
TOTAL	1855	100%	25387	100%

Figure 2: PEGI ratings by age until December 2015: The distribution of ratings per age class as given by PEGI since 2003 (Adapted by Felland (2020) from PEGI annual report 2015, p. 13).

total of 25,387 video games, which comes out to about 7%. While this may not seem like a huge number of PEGI 18 games, this number is staggeringly high compared to the number of games rated AO by the ESRB. When searching for games on all platforms that are rated AO using the ESRB's search functionality, only 27 total results are pulled up. What is the purpose of an entire

rating for adults only, yet, if the rating is used, the game is essentially unsellable and must be modified to meet the mature content label?

Aside from the 18+ category, the PEGI has more distributed age groups. The PEGI does a good job of basing the system around the maturity of humans, hence why PEGI 3, PEGI 7, PEGI 12, PEGI 16, and PEGI 18 were chosen. The age groups are representative of a toddler, a child, preteens, teens, and adults, which are all distinct parts of a person's life. The ESRB, on the other hand, has broader age groups. Instead of specifying between a toddler or child, the rating of E for Everyone is given. Then, instead of distinguishing between 12, 16, and 18 year olds, the ESRB uses Everyone 10+, Teenagers, which is 13+, Mature 17+, and Adults Only 18+. The ESRB used to have two other categories, Kids-to-Adult and Early Childhood, but both of them were retired in favor of E for Everyone in 1998 and 2014, respectively ("Our History", 2019). This leads to the ESRB and the PEGI having the same number of age groups, but they did not reach the same conclusions on where to draw the lines. Figure 3 on the following page shows the gap, in years, between the age groups in both systems, with the ESRB's E being treated as an age of 3. Both sets of differentials have the same mean value of 3.75. However, examining the variance is when the differences are revealed. The variance for the ESRB is 6.25 years, which is significantly higher than the PEGI's variance of 1.583. Both systems are similar in the 10 to 18+ range, but are much different in how they go about rating games for children. The ESRB has a blanketing E for Everyone category until 10 years of age, whereas the PEGI splits it up into PEGI 3 and PEGI 7 until PEGI 12.

The difference of how the systems rate games for children can lead to some interesting differences in ratings for some specific games. *The Legend of Zelda: Majora's Mask* is a game created by Nintendo in which you play as a cartoon hero and try to save the world from evil. It

ESRB Ratings	Differential	PEGI Ratings	Differential
E (3) – E10+ (10)	7	PEGI 3 – PEGI 7	4
E10+ (10) – T (13)	3	PEGI 7 – PEGI 12	5
T (13) – M (17)	4	PEGI 12 – PEGI 16	4
M (17) – AO(18)	1	PEGI 16 – PEGI 18	2

Figure 3: Differentials of age groups of the ESRB and the PEGI: The mean value of the differentials are the same for both rating systems; however, the variance is much higher for the ESRB (Felland, 2020).

received a rating of E from the ESRB, simply citing animated violence. In contrast, the PEGI rated the game as PEGI 12 as the game contains "realistic looking violence towards non human looking characters – Non realistic looking violence towards human characters" ("The Legend of Zelda," 2020, para. 1). The implications of the rating being significantly different in the two systems are quite large. The ESRB suggests that the game is perfectly fine for everyone to play, including young children who might be only 3 or 4 years old. However, the PEGI suggests that players should be at least 12 years old before playing this game due to violence toward human and non-human-like characters. When considering purchasing this game for a child, which system should be trusted?

To help understand why *The Legend of Zelda: Majora's Mask* is suggested for older audiences in the PEGI, it is important to understand the factors that influence a game's rating. As mentioned earlier, the artistic choices developers make when designing games is the primary influence. The choices the developers make lead to different content descriptors being applied to certain games. Content descriptors are features of both the ESRB and the PEGI, and they are keywords that give a general idea of the contents of a game. The ESRB has 30 content descriptors, some of which are "comic mischief," "cartoon violence," "blood and gore," and

"strong language" ("Ratings Guide", 2020, para. 2). The PEGI, however, only has a total of 8 content descriptors: violence, bad language, fear, gambling, sex, drugs, discrimination, and online ("What do", 2020, para. 6 – 12). In general, the ESRB has more specific content descriptors, and the PEGI has more encompassing content descriptors. An example of a more encompassing content descriptor is the gambling content descriptor for the PEGI when compared to the real gambling and simulated gambling content descriptors of the ESRB. Because the PEGI only has a gambling content descriptor, any form of gambling, no matter how trivial, makes the game more likely to be rated for more mature audiences, since the game has to take on the entire gambling content descriptor. With the ESRB, though, since there are different types of gambling content descriptors, a game isn't necessarily going to be rated E10+ or higher if it contains a simplified version of gambling. The additional content descriptors employed by the ESRB typically serve to give more detailed information about a game while also keeping the rating lower, as opposed to the PEGI's more strict and all-encompassing content descriptors.

LIMITING THE NEGATIVE EFFECTS OF VIOLENT VIDEO GAMES

Society clearly has an influence over video games through the creation of video game rating systems, but video games also exert influence over society. Sheila Jasanoff (2004) articulated this concept of society both influencing a technology and being influenced by the same technology in her theory of co-production (p. 15). Figure 4 on the following page is a diagram of the relation between society and the video game industry. Initially, society was driven to create the rating systems due to the concern of the contents and ease of accessibility of video games. This causes video game developers to have to consider the rating that they will receive, and modify the content if they want a different rating. Then, after releasing the game, society's reception to the game changes how the company is viewed, typically either more positively for

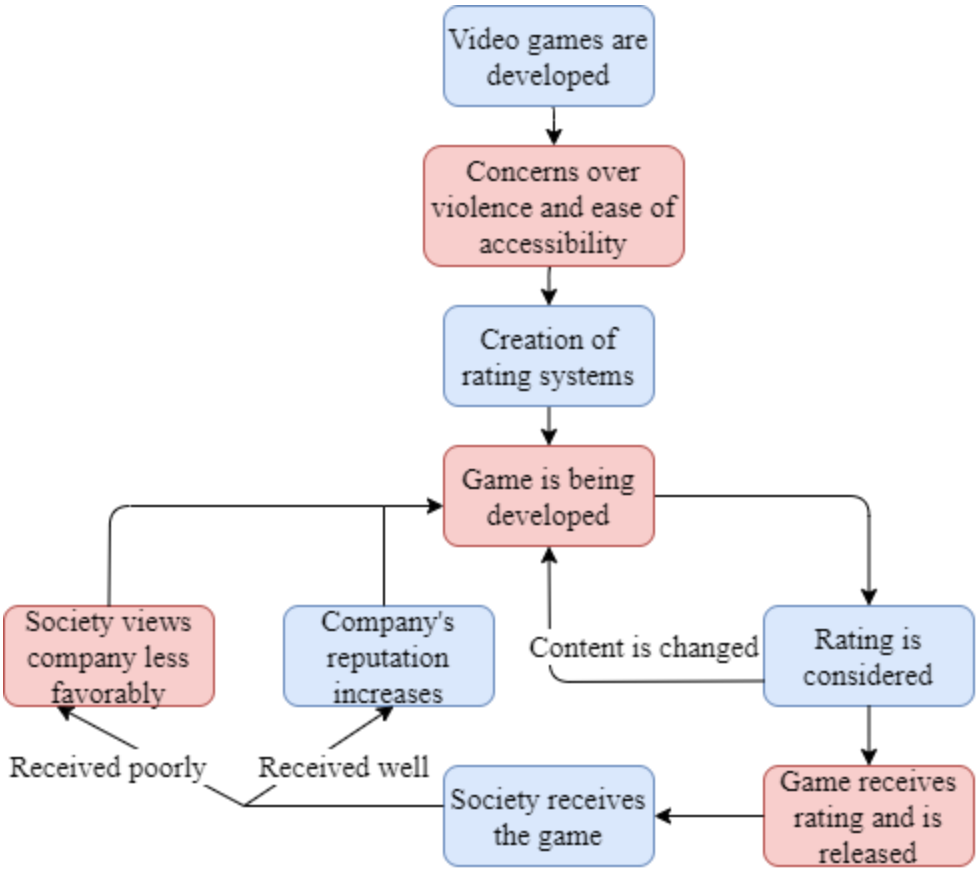

Figure 4: Co-production and video games: Society influences video game companies both through the creation of rating systems and through the reception to games that are created. Video games companies influence society back with the games they create (Felland, 2020).

making good games, or more negatively for making low quality games. After this, the video game company may decide to develop a new game, which continues the cycle.

Society's recent influences over video game companies are mostly related to the reception of games, which can lead to more of that game genre being developed if successful, or less if not successful. Aside from the reception, though, society has not had any large scale response ever since the initial creation of rating systems roughly 20 years ago. There are growing concerns in US politics that violent video games contribute to more aggressive behavior (Snider, 2019). However, no real attempts to limit these effects have been suggested. Violent video games cannot simply be banned outright due to the Supreme Court ruling that decided that video games

are protected by the First Amendment in *Brown v. Entertainment Merchants Association* (Ortner, 2019). Thus, another solution must be implemented to limit the violent effects that these video games may have. In the United States, a reform of the ESRB system could accomplish this. Actually using the AO rating for games instead of clumping all the more mature or violent games into the M rating would give a better idea of the content in games. This way, parents might be less likely to buy an AO game for their children instead of an M game. The ESRB system should also introduce another age group for young children, similar to how the PEGI does it with PEGI 3 and PEGI 7. The ESRB's jump from players of all ages to players 10 and older is too great, which can make some games too inappropriate for the younger audiences, despite technically falling in the age group. By removing the stigma from AO games and introducing a new age group for children, the ESRB can help combat the negative effects of violent video games for children and teenagers.

Future work includes proper enforcement of the age groups. It is extremely difficult to properly enforce who can play what game, especially with the advent of online games. However, if a game is recommended for people 17 or older, parents should not let their 10 year old child play the game. Waiting until players are more mature before playing the mature games could also help combat the negative effects of violent video games. If there were a system that could do this, it would be beneficial in restricting access to more violent content for younger players.

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