**Literature Review Notes and Summaries**

**Bean, A., Groth-Marnat, G. (2016). Video Gamers and Personality: A Five-Factor Model to Understand Game Playing Style. Psychology of Popular Media Culture, 5(1),27-38.**

**Summary Discussion:**

Bean and Groth-Marnat (2016) explored the relationship between video game players (gamers) personality traits and the choices that they make when developing virtual characters in the current most popular Massive Multiplayer Online Role Playing Game: World of Warcraft. The authors provided as motivation for their experiment the lack of research on the potential impact of personality factors on gaming despite the fact that the activity continues to rise in popularity as a recreational activity. Additionally, they pointed to the popular assertion that exposure to violent videogames may be associated with violence in chilren and adolescents with particular focus on the question of whether video gamers tend to exhibit different personality traits from the rest of the population. The experiment presented by Bean and Groth-Marnat (2016) aimed to explore specifically the relationship between the factors of the Big Five Inventory (BFI) personality measure and the following aspects of character development in WoW: character race, class, specialization, and faction (see https://worldofwarcraft.com/en-us/ for details of available choices). Additionally, they explored the relationship between personality and player's biological sex as well as preferred play style (player-versus-player, player-versus-environment, role-playing). Although other more sensitive personality measures may exist, Bean and Groth-Marnat (2016) note that the high reliability and convergent validity of the BFI as well as its ability to be administered online made it an appropriate choice for their collection methods.

Results of statistical analyses run on personality and survey data collected from 1,210 participants showed that the BFI only meaningfully provided predictive power regarding gamers' play style, and not race, class, specialization, or faction. Interestingly, Extraversion was found to be highest for participants who preferred player-versus-player interaction as opposed to role-playing which relies heavily on player-player social interaction. Similarly, Neuroticism was found to be highest for participants who preferred role-playing which may point to some desire of those individuals to exert control over the way that they are perceived in the virtual world of WoW. Bean and Groth-Marnat (2016) also present tangential findings confirming the tendency for females to exhibit higher Agreeableness, Neuroticism, and Openness. Perhaps one of the more interesting results of the experiment was that WoW players were not found to differ significantly from a non-player population along any of the BFI factors; that is important in the context of the question of video games and violence because it would seem that if there is any credibility to the claim, it must be driven by the games themselves and not the sorts of individuals who play them.

The findings of Bean and Gorth-Marnat (2016) suggest that a BFI model may not be appropriate for predicting a wide spectrum of outcomes, such as choice of character class (14 options), but can serve to illustrate differences on more clearly defined scales as indicated by the findings related to play-style (3 options). The lack of findings regarding faction (2 options) may seem to disagree with that claim; however, faction choices determine nuanced aspects of gameplay in WoW which are less likely to be impacted by personality than the other factors investigated. Future research should more concretely establish why personality factors may be expected to predict payer's choices regarding their character development, and hone in on more concrete spectrums within the factors that may be relevant. Race, for example, may have not been predicted by the BFI model because of the number and variety available whereas a further classification such as "human-like race" (such as elves, gnomes, or dwarves) or "monster race" (such as orc, worgen, or tauren) may be predictable given player's personalities.

**Clarity of Exposition:** The exposition of Bean and Groth-Marnat (2016) is written quite clearly, but seems to provide motivations for the conducted research that do not align with the methods or the vast majority of the discussion. Notably, the authors spend a decent portion of their introduction pointing to the question of whether video game exposure may be causally related to violence, but do not seem to make any foray into measuring violent tendencies or to discuss the issue beyond noting that WoW players seem to have similar personality sets as a whole compared to a comparable non-player population. Additionally, although the authors are likely correct that little research has been done to study personality factors relating to WoW, the general literature relating to personality regarding video games is not small and should perhaps have been more the focus of the exposition than the seemingly tangential question of video game violence. Overall, it seemed as though the authors used the “hot-button issue” of Violence & Video Games to catch reader’s attention, but then took their research in a different direction.

**Quality of References:** The majority of strong claims made in this article are well supported by relevant research.

**Reproducibility:** The primary reason for the vast number of one-off personality based studies is the immense ease of their execution, and similar to many of its counterparts this study could be easily replicated given enough commitment to disseminating the experimental materials. On the other hand, whether the results could necessarily be reproduced may depend on the population to which researchers have access: online forums tend to be self-selecting communities, and any in game solicitation would occur mostly through the network of the researchers involved so it is possible that it might be difficult to collect a similar population and reproduce the results.

**Rating: 3**

**Explanation of Rating:** The fundamental research questions and methods presented by Bean and Groth-Marnat provide interesting insight into one of the fastest growing recreational activities in the first-world: video-gaming. They fell short in some places with respect to motivating the research and making only those conclusions that were strongly supported by their data. The mark for a 4 rating was missed slightly because of the addition of tangential arguments which took up space and reading time, but added little-to-nothing to the actual investigation.

**Dunn, R., Guadagno, R. (2012). My avatar and me – Gender and personality predictors of avatar-self discrepancy. *Computers in Human Behavior*, 97-106.**

* One area of computing is particularly germane to discussions of identity is that of the avatar – a representation of oneself within computer-mediated environments that is typically graphical in nature
* This paper will further investigate these issues by examining the relationship between gender, personality characteristics, self presentation online, and avatar-self discrepancies.
* Habitat, another early pioneer of MMO games, involved people logging into a network to play the same game with or even against one another. Habitat creators called the graphical representations of players ‘‘avatars,’’ which offered some very limited customization abilities (Rheingold, 1993). Today’s video games offer much more detailed levels of avatar customization.
* It is within this customization that we find some of the discrepancies between the real person and their selected avatar (Ducheneaut, Wen, Yee, &Wadley, 2009).
* Lee’s (2004) discussion of self presence suggests a continuum that has implications that are more practical to the electronic world. He argued that presence is really the measurable difference between the experience of reality and the experience of virtual reality. Self presence, he wrote, is the difference between the real person and the ‘‘para-authentic self’’ (a mediated representation of one’s true self) or the ‘‘alter-self’’ (a mediated and unrepresentative version of the self). This alter-self would include selecting an avatar for role-playing purposes. Thus, this perspective suggests that the real person generally chooses an avatar that is somewhere between a para-authentic avatar and an alter-self avatar. Lee’s proposed continuum is central to the present study, as we investigate the characteristics that predict discrepancies between the avatar and the self.
* H1a. Men will pick larger avatars than will women.
* H1b. Men will pick taller avatars than will women.
* H2. Women will select thinner avatars than men will.
* H3. Personality will be a moderator for the impact of gender on avatar selection.
* H4. Extraverts will be more likely to select avatars with fewer discrepancies from themselves than introverts will
* H5. Neurotic participants will select avatars with more discrepancies from themselves than will non-neurotic participants.
* H6. People high in openness to new experience will be more likely to pick avatars with fewer discrepancies from themselves than people less open to new experiences.
* H7. People with low self-esteem will be choose avatars with more discrepancies from themselves than will those with high self esteem.
* Participants played *Neverwinter Nights 2*
* After 20 min of game play, the subjects were presented with a computer-based post-test. The questionnaire included Rosenberg’s (1965) Self-Esteem Scale, Benet-Martínez and John’s (1998) Big Five Personality Scale (‘‘Big 5’’), demographic questions, and items assessing the perceived relationship between the participant and his or her avatar.
* Overall, our findings indicate strong connections between people’s selection of avatars as a means of self-representation and impression management (Schlenker, 1980). Men and women both selected avatars that differed from themselves in ways that correspond to societal norms. Aside from size, our results indicate that attractiveness and skin tone are particularly important aspects of avatar selection. There also seems to be some significant differences between the user and their avatar for those higher in introversion and neuroticism and lower in self-esteem
* Our results indicate that personality also impacts how people chose to represent themselves in virtual environments and this effect intersects with gender. For instance, agreeableness alone did not have a strong impact on avatar selection. However, in conjunction with gender, agreeableness was a significant moderator. This suggests that agreeable men may attempt to conform to the idea that society (at least virtual society) would value a big, muscular, and masculine man (Olivardia et al., 2004; Pope et al., 1999). Similarly, agreeable women may not be selecting smaller avatars as a means of reducing body bulk, which would be well within the line of the thin ideal (Harrison, 2000; Harrison & Cantor, 1997).
* Openness to new experiences was the one Big 5 factor that yielded the greatest number of significant effects on avatar selection. For instance, our findings revealed that men high in openness were more likely to choose darker skin tones relative to their actual skin tone.
* Additionally, introverts were more likely to select attractive avatars than their extravert counterparts were.

**Halim, Z., Atif, M., Rashid, A., Edwin, C. (2017). Profiling players using real-world datasets clustering the data and correlating the results with the big-five personality traits. *IEEE Transactions on Affective Computing.***

* This work performs the profiling of human subjects using computer games. For recording various real-world-like features two benchmark strategy game datasets (Starcraft and WoW) are used. An additional dataset is also recorded using Age of Empire II utilizing 50 participants. Datasets contain 57, 10, and 30 features respectively.
* Uses four clustering techniques: k-means, k-medoids, fuzzy c-mean, and hierarchical clustering.
* Three feature selection techniques are used: mutual information, principle component analysis, and random subset feature selection
* This work later uses classifiers to predict an unknown player’s profile/group, giving his/her gameplay data.
* To create the ground truth and for the purpose of evaluating the participants’ personality, IPIP-NEO-120 questionnaire is used.
* By combining the profiling results with participants’ demographics it was found that the individuals who have been playing computer games since their childhood are higher in neuroticism and openness as well as lower in extraversion, conscientiousness, and agreeableness

**Billieux, J., Van der Linden, M., Achab, S., Khazaal, Y., Paraskevopoulos, L., Zullino, D., Thorens, G. (2013). Why do you play World of Warcraft? An in-depth exploration of sef-reported motivations to play online and in-game behaviours in the virtual world of Azeroth. Computers in Human Behavior, 29, 103-109.**

* Video game play has become a major leisure activity during the past 30 years.
* Research on online games has highlighted that an individual’s motivations for playing MMORPGs have a crucial role in the onset of online game involvement and in its continuation (Yee, 2006).
* The current study is a first attempt to extensively investigate the relationships between players’ self-reported motives and their actual in-game behaviors
* Participants’ characters were monitored for 8 months, participants completed the Motivation to Play in Online Games Questionnaire to measure motives to engage in online games.
* If self-reported motivations to play online are valid constructs they should be related to actual in-game behaviours.
* The total progression score was primarily associated with advancement and mechanics motives, but also related to the achievement and mechanics motives. Quests and explorations achievements were specifically related to the discovery motive. PVP achievements were primarily related to the competition motive, although significant associations also took place with both advancement and mechanics motives. Dungeon and raids achievement score was related to the advancement, mechanics, and discovery motives. Finally role-play customization and escapism motives were unrelated to specific in-game achievements.
* Correlation analyses also emphasized that self-reported motives logically relied on the type of servers chosen by the players. Participants playing in PVP servers were motivated by competition, whereas the opposite relation was found for people playing in the PVE servers.
* A limitation to the study is that we considered players to have a unique main avatar, although we cannot exclude the possibility that some participants had more than one character that they considered as main characters.

**Weiss, A., Tettegah, S. (2012). World of Race War: Race and Learning in World of Warcraft. *International Journal of gaming and Computer-Mediated Simulations,* 4(4), 33-44.**

* In WoW race is not only important to the mechanics of game-play; race also defines relationships between characters and among races.
* To put it simply, World of Warcraft is a game of race war.
* Moreover, these racial components of the game sever ties between players’ physical and game world racial identities, limiting the players’ sense of responsibility or criticality in their approach to in-game racial behaviors and actions. Based on these conclusions, we argue more broadly that WoW does not provide an intrinsic means for players to learn higher-order interpretive or critical reasoning skills, but may, in fact, limit the acquisition of those skills.
* Games, however, are not static spaces but spaces where player performance transforms the meaning of the game through the process of playing the game.
* Nakamura (2008) and Devane’s (2008) work points out the agency that players have in deciding their style of play and the importance that they ascribe to certain aspects of a game
* Researchers who promote the educational potential of commercial games, particularly MMORPGs, have sidestepped issues of race, and have dismissed developer-produced game content as an important factor in the operation of games as exemplary learning environments.
* Rather, players are learning how to participate based on racial classifications within the games and therefore develop a racial identity as perceived by the game designer. In other words, far from being spaces where players construct identity and meaning independent of the environment itself, games scaffold players’ in-game identities and situate that learning within particular racial representations.

**Jimenez, N., San-Martin, S., Camarero, C., Cabezudo, R. (2018). What kind of video gamer are you? *Journal of Consumer Marketing.* 36(1), 218-227.**

* The objective of this study was twofold: to ascertain the role of different types of gamer motivation to play vis-à-vis purchasing game-related products and to analyze the moderating role of gamer personality on the motivations-purchase links
* Following the Trait Theory, this study confirms that the BigFive factors of a gamer influence how and what game they play. Moreover, according to the Uses and Gratification Theory and the Flow Theory, gamers search for hedonic and social motivations when playing a game, and these drivers affect their purchase behavior of game-related products.
* Moreover, after obtaining three main groups of gamers (analysts, socializers and sentinels), this work indicates that hedonic motivation is relevant only for analysts, while social motivation proves key for the three groups

**Delhove, M., Greitemeyer, T. (2018). The relationship between video game character preferences and aggressive and prosocial personality traits. Advance online publication.**

* Video gaming is an ever-growing industry, generating more than $100 billion in revenue in 2016 and with an expected 7.8% increase for 2017 (Newzoo, 2017).
* The most-often used model explaining the link between video game violence and aggression is the general aggression model (GAM; Anderson & Bushman, 2002). In this model, persons and situations influence one’s internal state in different ways (i.e., in terms of affects, cognition, and arousal).
* The debate on the link between VVGs and aggression is still ongoing (Ferguson & Konijn, 2015), with some studies finding no effect of violent content (Adachi & Willoughby, 2011) or even diminished aggression after playing games with violent content
* There is, however, a question that, to the best of our knowledge, has never been the focus of video game studies, namely, the impact of one’s in-game role. Because of this, players of the same game can have varying levels of prosocial and aggressive in-game behavior when playing,
* To test our hypotheses, we focused on in-game roles within a single video game: Overwatch (OW).
* The present research suggests that one’s favored role in a video game relates to certain personality traits. When comparing OW players on the basis of their favorite hero’s class, we found that participants who preferred a less aggressive Support hero were more empathic and agreeable and less aggressive, with a less dark personality, than those who favored a more aggressive Offense hero. Self-perceived aggressive in-game behavior also correlated positively with trait aggression, and the D4, and negatively with empathy and Agreeableness. Although these effects were small in terms of their effect size, it is worth noting that they emerged from variation among a single game.
* On the other hand, the relationship could work in the opposite direction, with players having a preference for a role that better fits their own personality. For example, Ewell and colleagues (2016) found that existing personality predicted participants’ choices in creating a character in a game. Likewise, OW players could be inclined to pick a character that is similar to them.
* To conclude, in this study, we found that different in-game roles inside a single game are linked to varying personality traits among the players.