The Effect of Gender, Native English Speaking, and Age on Game Genre Preference and Gaming Motivations

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Abstract. Gender, native English speaking, and age significantly effect game genre preference and gaming motivations. Ordinary Least Squares (OLS) regression shows they explain 5 %–10 % of the variance in game genre preference and up to 7 % in gaming motivation. Gender coefficients show males prefer the competition-based First Person Shooter (FPS) games while females prefer the immersion-based Massively Multiplayer Online Role Playing Games (MMORPG). Native English speaking coefficients show native English speakers prefer the text-heavy MMORPGs, while non-Native English speakers prefer the text-light Multiplayer Online Battle Arenas (MOBA) and FPS games. Age coefficients show younger players prefer MOBAs, while older players prefer FPS games. When it comes to gaming motivation, males are more driven by competition, while females are more driven by immersion and social motivations. Native English speaking only factors into two motivations related to immersion. Age coefficients show that gaming motivation decreases across the board as players grow older.

Keywords: Gender · Age · English · Video games · Motivation

1 Introduction

Video games have grown into a mainstream pastime, with half the American public engaging in the activity on a weekly basis [1]. As video games have gained more traction with the general public, they have also grown as a field of academic inquiry. An expanding body of work has emerged that seeks to uncover who plays video games, how they engage with video games, and why they feel driven to pursue video game play as a pastime [2–4].

To ensure reliable and robust research results on such complex issues, the effect of potential confounds such as gender, native English speaking, and age should be determined. Currently the video game literature shows mixed effects of these confounds on the behavioral and cognitive processes underlying, perpetuating, and resulting from video game play. For instance, in a meta-review of

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35 research reports, Anderson et al. [5] determined that gender is not a significant confound on aggression resulting from video game play. Conversely, seminal research by Yee et al. [6] on gaming motivation, as well as extensive work by Mitchell & Savill-Smith [7] on the role of video games in education have shown that gender significantly confounds the appeal and impact of video game play in their research.

To shed more light on the strength of potential confounds in video game research, we look at the effect of three common confounds on the most basic aspects of video game play: what people play, and why. The potential confounds in question are gender, native English speaking, and age. The what and why of play are instantiated as an individual's game genre preference and their gaming motivations. If the confounds significantly impact game genre preference and gaming motivation, then the case is strengthened for controlling for these confounds to ensure robust results in future video game research.

2 Methods

To test the effect of gender, native English speaking, and age on game genre preference and gaming motivation, we collected data from participants online. Data consisted of gender, age, country of residence, English skill level, a survey of gaming motivation [6,8,9], and a valid game account in at least one of four games: World of Warcraft (WoW), League of Legends (LoL), Battlefield 4, and/or Battlefield: Hardline. Battlefield 4 and Battlefield: Hardline are functionally identical games. For that reason, the players of these two games are grouped and jointly referred to as 'Battlefield' (BF) players for the remainder of this paper. Each game represents one of the most popular online multiplayer games and supports an active player base of at least 10 million players. World of Warcraft represents the fantasy themed, third-person, cooperative/competitive, story and exploration driven genre of Massively Multiplayer Online Role Playing Games (MMORPG). League of Legends represents the fantasy themed, third-person, team-based competitive, match-structured genre of Multiplayer Online Battle Arena games (MOBA). Battlefield represents the realistic military shooter, first-person, team-based competitive, match-structured genre of First-Person Shooter games (FPS). The survey of gaming motivation was compiled by using a short form of 13 motivational factors validated by Yee et al. [6], Hilgard et al. [8], and Sherry et al. [9]. The short forms are reliable as they correlate with the original long forms with effect sizes over .9. The 13 motivational factors are listed in Table 1.

Before analysis, the data was filtered on four criteria. First, data from minors (age < 18) was excluded from the sample, resulting in the inclusion of 2817 players. Secondly, 28 players were excluded as outliers for showing no univariate variance in their responses. Thirdly, 19 participants were excluded as outliers for indicating the gender value "other" while all remaining participants indicated either "male" or "female" for gender. Lastly, 363 participants were excluded for indicating an English skill level other than "Advanced" or "Native". Both

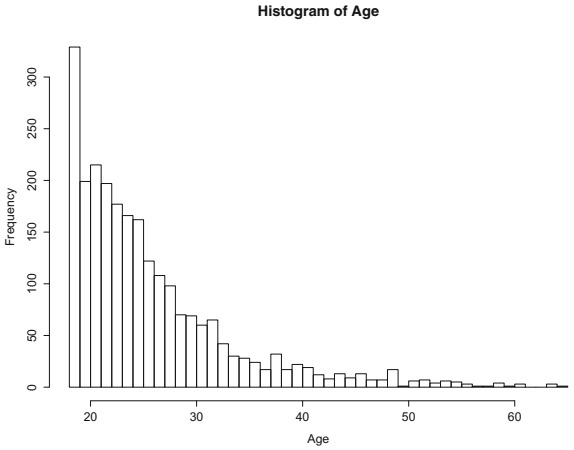

Fig. 1. Age distribution

advanced and native speakers of English are expected to fully understand all survey items. Therefore, native English speaking became a proxy for culture (Anglosphere cultures versus non-Anglosphere cultures).

The characteristics of the remaining sample are as follows. It contained 2400 participants, including 2073 males and 327 females, of which 943 were advanced English speakers and 1457 were native English speakers. The average age was 26.17 (std = 7.72), with a zero-inflated distribution around the minimum age of 18 (see Fig. 1). Most participants played World of Warcraft (n = 1181), followed by League of Legends (n = 919) and Battlefield (n = 824). In total, 436 participants indicated playing two of the aforementioned games, and 44 participants indicated playing all three games.

3 Results

Ordinary Least Squares (OLS) regression showed that gender, native English speaking and age are significant confounds to game genre preference. They explain 5 %, 10 % and 9 % of the variance in preference for playing World of Warcraft, League of Legends, and Battlefield, respectively. Table 1 shows the results of the regression. The gender coefficients reveal that women show a mild preference for MMORPG and MOBA games, while males show a pronounced preference for FPS games. The native English speaking coefficients reveal that native English speakers are biased toward (the more text-heavy) MMORPG genre, while advanced English speakers show a slight preference for (the less text-heavy) MOBA and FPS genres. The age coefficients reveal that age is not a confound for MMORPG play, while age is negatively related to MOBA play and positively related to FPS play. The age coefficients seem low compared to the gender and native English speaking coefficients, but this is due to the value range

Table 1. OLS regression of the predictors gender, native English speaking, and age on the outcome variables game genre preference and gaming motivation. Game genre preferences are binary and gaming motivations are continuous variables. Gender is (M)ale or (F)emale. Native English speaking is (A)dvanced or (N)ative. Age is a value from 18–65. * indicates that $R^2 < .01$. All models are significant at $\alpha = .05$. Coefficients are listed when $R \geq .01$ for the relevant model and $p \geq .05$ for the relevant coefficient.

	Gender 1 = M, 2 = F		English 1 = A, 2 = N		Age 18–65		Model Fit
	β	t	β	t	β	t	R^2
Game genre preference							
MMORPG: WoW	.18	6.22	.19	9.30			.05
MOBA: LoL	.08	2.85	−.12	−6.31	−.02	−14.24	.10
FPS: BF	−.33	−12.08	−.08	−4.11	.01	8.76	.09
Gaming motivation							
Competition	−.40	−6.90			−.02	−9.09	.06
Challenge							*
Fantasy	.22	3.79	.23	5.48	−.02	−5.87	.03
Arousal					−.01	−5.15	.01
Story	.22	3.70			−.02	−8.12	.03
Escapism	.27	4.50	.24	5.65	−.01	−3.51	.02
Loss aversion							*
Customization	.65	11.20			−.02	−8.06	.07
Grinding/completion	.40	6.76					.02
Autonomy/exploration							*
Socializing							*
Relationships	.39	6.57			−.01	−5.21	.03
Team work							*

of each variable. For instance, the reasonably large difference between males and females on Battlefield ($\beta = -.33$) would be equaled by a 33 year difference in age ($\beta = .01$) on the same game.

Gender, native English speaking, and age explain up to 7 % in the variance in gaming motivations. The coefficient values for gender, native English speaking, and age for the outcome variables related to gaming motivations are conceptually in line with the coefficient values for game genre preference. They show that men prefer competition, such as can be found in FPS games, while women prefer Fantasy, Story, Escapism, Customization, Grinding/Completion, and Relationships, such as can mainly be found in MMORPGs. Native English speaking is only weakly related to gaming motivation. The notable exception is that native English speakers show a preference for Fantasy and Escapism motivations that are in line with their preference for MMORPG games. Age is negatively related to half the gaming motivations, showing either a cohort effect and/or that people progressively lose interest in gaming as they grow older.

4 Discussion and Conclusion

Gender, native English speaking, and age have been shown to be significant confounds for game genre preference and gaming motivation. The variance explained by the confounds is between .01 and .10. Although these values are too low to form a predictive model, they are considerable in the context of confounding variables. They indicate that when the confounds are not controlled for, research results may incur an *additional* error of 1 %–10 %. Translated to effect sizes in correlational studies, this can lead to the misattribution of .1 to .32 of the effect sizes of variables that are influenced by gender, native English speaking, and/or age.

We wish to point out that the (already considerable) effects of gender in the realm of gaming might be more pronounced than found in this study. Additionally, interaction effects were not explored, even though it is plausible that, for instance, gaming motivation develops differently with age for males than for females. Due to the recruitment method of using anonymous online volunteers, the sample became biased towards male gamers, with a male-female ratio of around 5:1. This ratio is common in the field of video game research [6], and does not actually reflect the gender distribution among gamers. In their 2015 rapport on the gamer demographic in America, the Entertainment Software Association reports an almost 50–50 ratio of males to females [1]. Presumably, females are less vocal in sharing their gaming interest and engaging in the video game culture online where most game research samples are drawn from. This gender bias in the research samples can be remedied by specifically recruiting females. Hilgard et al. [8] and Sherry et al. [9] follow this approach in their studies. However, in order to verify and recruit an even gender distribution, it is necessary to resort to offline recruitment, such as is common at college campuses. This in turn strengthens the sample bias toward native English speaking and age, as most participants are college age individuals who are predominantly from one culture.

All in all, the results of this study show that gender, native English speaking, and age have a considerable effect on what (game genre preference) and why (gaming motivations) people play video games. Therefore, they underline the importance of controlling for these variables in video game related studies. Future work should endeavor to minimize sample biases on these three variables, as well as further explore how they interact with more detailed game behaviors and related cognitions.

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