Abstract: *Our everyday lives are increasingly digitized, virtualized and gamified. People increasingly live and act through a collection of various digital personas and avatars. However, the question of how peoples' psychological traits may predict the traits and features of their virtual avatars is still relatively unexplored. In this study investigates the relationship between the traits related to gaming preferences and forms of capital (economic, cultural, social and symbolic) their avatar commands. The data was gathered through an online survey (n=905) amidst the players of a MMORPG Final Fantasy XIV. The results indicate that avatar's cultural capital is associated player's orientation towards achievement-mechanics, immersion and social aspects of games. Economic capital is associated with player's orientation towards achievement and relationship sides of games. Social capital is associated with players' orientation towards immersion and social parts of games, and in-game interests of the player. Symbolic capital is associated with player's orientation towards achievement and social orientations and one's tenure in the game.*

Keywords: Avatar, digitalization, virtualization, capital, MMORPG, video games

Avatar capital: The relationships between player orientation and their avatar's social, symbolic, economic and cultural capital

Introduction

Our everyday lives are increasingly digitized, virtualized and gamified (Castronova, 2007; Hamari, 2019; Turkle 2011); we spend considerable amounts of time in virtual worlds/realities, games, gamified environments and social media services mediated by a variety of digital personas and avatars through which we project and internalize our personalities, desires and capital (Boellstorff, 2008; Castronova, 2007; Hamari, 2019; Nardi, 2010; Prensky, 2001; Taylor, 2006; Turkle, 2005; Turkle, 2011). Beyond the environments developed as stand-alone digital environments, non-digital environments are also increasingly digitized and gamified (Koivisto and Hamari, 2019) through which the affordance for creation of avatars and digital personas is reaching multiple basic functions and activities of our lives. Noticeable examples of these veins of development are quantified-self, pervasive gamification of digital services, and augmented reality overlaid on top of everyday activities. Therefore, the ways in which the facets of us are defined amidst and in interaction with several digital and non-digital realms seems to be becoming more nuanced and multi-faceted..

People may project and possess varying and conflicting aspects between these multiple personas (Mancini and Sibilla, 2017). It becomes an alluring research question as to what makes our lives seem different from our Instagram persona than for ourselves (Pittman and Reich, 2016; Vasalou, Joinson, Bänziger, Goldie and Pitt, 2008), what makes us valiant heroes in games, whereas in the real world we might lead sedentary lives or why we are and have repositories of specific information about history of a virtual world, while we know only a modest amount of our country's history. From these anecdotal observations of our contemporary digitized life emerges a larger research problem area of what this "exodus to virtual worlds" imply and mean (Castronova, 2007) and what is the relationship between us and our avatars.

The topic centralized on avatars has expectedly received attention from scholars during the last decade with topics ranging from player-avatar identification (Downs, Bowman and Banks, 2017; Mancini, Imperato and Sibilla, 2019; Sibilla and Mancini, 2018), how identification with avatar affect loyalty and continuity intentions (Hooi and Cho, 2017; Liao, Cheng and Teng, 2019; Tseng, Chang, Lee and Teng, 2018) to studying player-avatar interaction (Banks and Bowman, 2016; Banks et al., 2019). Mentioned publications focus greatly on the relationship between the player behind the screen and the avatar(s) they create. Scarcely in avatar-related discussions is the in-game materiality considered and what its

effect is on the player-avatar identification (Banks, Bowman and Wasserman, 2017). This study opens up a new vein among the literature on avatars by investigating how the traits of the player explain avatars and specifically the capital (economic, cultural, social and symbolic) they command. Therefore, the present study adds to the prior literature on player-avatar identification by focusing not only on how the avatars look or what they are, or how important those aspects are deemed, but also what the avatars have. In particular, this study investigates the relationship between player orientations towards gaming (achievement, immersion and social -orientation), and avatar capital (social, economic, cultural and symbolic). The data was gathered through an online survey (n = 905) amidst the players of Final Fantasy XIV.

Theory

Avatars

People utilize avatars in various ways. Purpose of an avatar can range from personal account on Facebook, to informing audience in work-related Twitter account and to all the way to live out the fantasy of being an elven arch-mage (Banks, 2017; Lin and Wang, 2014). Due to the nature of digitalization, it is at times difficult to draw a concise line between real and virtual (Lehdonvirta, 2010). Superficially, at least, the difference seems to be widest in

online video games that look, sound, feel and function very different compared to everyday lives. However, users of these online video games are human beings, and this means that some aspects of gaming, and posting stories in Tumblr, resemble and affect "real" more than one might expect. A large bulk of past research into games and players have focused on how games affect our "real lives", be it either through studies on problematic gaming, such as addiction and aggression (Kneer, Elson and Knapp, 2016) or the positive psychology related to games (see e.g. Hamari, Koivisto and Sarsa, 2014; Vesa et al., 2017 on gamification).

As games and virtual worlds are increasingly becoming a pertinent part of our lives, our investigation should also reach into outcomes relevant in the context of these worlds and not just on the outcomes the games have on our offline lives. Outcomes in the virtual worlds can often be seen as manifestations of real-life goods, objects, desires and influence. In virtual worlds, many objects function the same as in real life, have similar value to them and are just as desired (Banks et al., 2017). For example, an expensive mount, an armored horse for example, in a game functions the same as any car, and both attract wonder and jealousy as a Ferrari would. Especially in online video games, such as MMORPGs, the avatar's status, achieved items and desires are visible in a way not possible in the "real". In virtual worlds, avatars have much more control over what equipment to wear, which of the rare titles or mounts to showcase as real world's socioeconomical and -cultural and demographic

situations are not in effect as such (Martey et al., 2015; Ratan and Sah, 2015). Avatars' titles are in effect everywhere they go in the virtual world and they will elicit reactions often regardless of the context. In the "real", CEOs title matters little in the grocery shop queue or in home when nursing children. The discrepancy comes from virtual worlds being ultimately limited in their framework and nature, but it allows for focus on specific aspects, such as continuous visibility of avatar's feats (Banks and Bowman, 2015).

This affordance is possible because digitalization transforms the way we convey information. It is now possible to show someone what you are listening and express your emotions at a larger scale than ever, thanks to emojis and memes as information channels, for example. Just as it is possible to visually to inform about audio, digitalization/virtualization has spawned an expansive business where vanity items are the tools of the trade. Digital and virtual goods, such as songs, plane tickets, games and vanity items have been studied to understand more about their nature and relation to "real" (Hamari et al., 2014; Hamari and Keronen, 2017; Lehdonvirta, 2005, 2009, 2010). Results of these studies found correlation between attitudes and intentions towards purchasing virtual goods and motivation to play, immersion and self-representation. Especially the customizability of the avatar is driving the vanity item business, of which various item texture shops, such as

csgolonuge.com and "loot box" mechanics in multiplayer games are most prominent examples (Macey and Hamari, 2019).

In MMORPGs and virtual worlds, an avatar is considered a digitalized alter ego of the player (Castronova, 2005; Suh, Kim and Suh, 2011). As MMORPGs are immensely social in their nature, avatars are being compared to others constantly. Sometimes provocative gear, successful imitation of a celebrity or other characteristics of the avatar gain attraction and wide array of commentary. In MMORPGs' choke points, cities or inns, work as virtual hanging places (for more about this topic, see Ducheneaut et al., 2006) where impromptu interactions between avatars are common. This form of interaction can be one reason for players to invest greatly in self-representation of the avatar to get attention in some way, be it from friends or strangers.

The virtual exodus can also manifest in a capital form when a player explicitly wants to create an idealized alter ego to a confined space where actions only hold weight in said context. Often the idealized alter ego is concretely seen in various avatar styles that explore or mimic certain styles (Suh et al., 2011). One motivation for increasing avatar capital might be to stand out from other avatars by wearing a unique outfit. Wearing these outfits, or having a unique companion pet following around, will make the avatar more recognizable in-game, thus netting the avatar symbolic capital.

Capital and avatars

Ordinarily the term, capital, is mentioned in economical contexts as part of the production cycle, such as cash, tools and other available resources. The term capital can be defined as "accumulated, human labour" (Bourdieu, 1986, 241), however, in the last three decades usage of the term has expanded to cover social and cultural aspects of societies (Bourdieu, 1984; Ra, 2011). Bourdieu argued that it is nigh impossible to account property for the functions of the social world solely through economic capital theory, and all forms of capital should be reintroduced (1986). Following the digitalization of the societies, how the term capital currently is defined and what it includes has changed drastically. Capital theory can be used to explore social relations at societal and individual level (Bourdieu, 1984; Hanifan, 1916; Putnam, 1995, 2000). From the perspective of culture, capital is defined to conceptualize cultural understanding and knowledge of the objects and ideologies (Bourdieu, 1986). Different types of capital have been combined to operationalize larger topics, such as human capital (Becker, 1993), extended to fit limited contexts (e.g. gaming capital, Consalvo, 2007) and interconnected to other types of capital to further explain assets and resources available to an entity (Bourdieu, 1986). Avatars are a production of digitalization of

contemporary societies and as we live increasingly through these said avatars, it is of great importance to explore what types of capital we have in virtual forms.

Bourdieu's framework of four forms of capital is made with strong differences between the forms of capital. They originally were divided from the strictly economic viewpoint. Bourdieu introduced three different forms of capital: social, economic and cultural (1984). Bourdieu conceptualized the cultural capital to consist of three subtypes: embodied, objectified and institutionalized. Symbolic capital was presented in a later publication (1986) to conceptualize value and appreciation of one's feats and accumulated resources.

It has been postulated that games have a negative impact on our social and economic capital through the distance games drive between our lives and us (Hsu, Wen and Wu, 2009; Zhong, 2011). Moreover, the cultural capital stemming from our experience within games have mostly been scoffed at as part of the geek culture – even though also efforts to normalize this form of capital has been initiated (see Consalvo (2007) on gaming capital). However, efforts to investigate peoples' capital within game and virtual worlds are currently scarce. Thus far, only social capital has been extensively studied in the context of virtual and game worlds (see e.g. Ducheneaut et al., 2006; Hsu et al., 2009; Oh, Chung and Labianca, 2004;

Shen and Chen, 2015; Williams et al., 2006). Studies on players' other forms of capital in virtual worlds that use quantitative methods are rare.

Most literature pertaining to capital in game research stems from the work of Bourdieu's (1986) way of categorizing capital. To limit the scope, sometimes a prefix is placed before stating the term capital, for example, "group social capital" (Oh et al., 2004) or "online social capital" (Williams, 2006) or changing it altogether, for example, "gaming capital" (Consalvo, 2007). Although, not all these publications cite Bourdieu (1986), they still utilize the classification of different capital. Bourdieu's (1986) division of capital is a unique way of portraying multiple capital when exploring larger contexts, such as societies. This framework can be applied to online multiplayer video games, where each game has its own society with both formal and informal rules. For this reason, it is meaningful to use Bourdieu's (1986) categorization and find how various forms of capital manifest in games.

There is relatively little literature on player capital and particularly in quantitative research (see, e.g. Williams et al., 2006; Zhang and Kauffman, 2015; Zhong, 2011). A study by Walsh and Apperley (2008) used Bourdieu's framework of four types of capital to ask students various questions about them as gamers, and how they perceive other gamers. They approached the students' gaming capital by stating that social capital is needed for the exchange of capital to happen. This, in turn, indicates that gamers do possess multiple types

of capital (Walsh and Apperley, 2008) and one type of capital alone is not enough to understand fully players or their actions regarding video game contexts.

The capital accumulated and possessed by an avatar in-game hold varying amount of value in contexts external to the game; in the so-called "real world" (see Lehdonvirta (2010) for a more elaborate discussion on this issue). Table 1 illustrates and provides short definitions of the key concepts utilized in this study to quantitatively measure the types of capital an avatar has. It is clear that an avatar accumulates various types of capital during their time in a virtual world. Some of the capital they have could be transferred between virtual worlds and contexts, such social relationships, general knowledge of how MMORPGs work in principle and symbolic value of the avatar. The value of these transferrable types of capital is highest in their original context while they can have no value in non-game contexts. Therefore, to bring light to the lives of avatars in an MMORPG it is meaningful to study not only who plays and why, but what they do and have.

Playing orientation and capital

The most dominant frameworks of classifying and measuring player orientation has stemmed from the works of Bartle and Yee (Bartle 1996; Yee 2006; 2012; Hamari and

Tuunanen 2014; Vahlo et al. 2017) in which the player orientation has customarily been divided into achievement, immersion and social oriented.

Achievement motivation component includes the player's desire to gain power and compete with other players, progress rapidly, accumulate in-game wealth and status, and maximize avatar performance. Therefore, players with high score in this dimension are expected to have avatar which is recognized and wealthy through deeds and owned assets. Bourdieu (1986) defined symbolic capital to legitimize one's feats and accumulated resources. For example, a title has rewarded for defeating the hardest boss in the game will net the player recognition as the amount of people focusing on hardest group content is relatively small, making the value of the rewarded title higher. In similar vein, pets, mounts and other vanity rewards on top of gear gained or earned from specialized aspects of the game, make the avatar more recognizable and progress-oriented. Thus, we propose that:

H1: Achievement oriented gaming preference is positively associated with economic and symbolic capital of the avatar.

Immersion motivation dimension is described to encompass playing preference that focus on exploring and understanding the game world to find things that other do not know, role-playing, customizing their avatar or use game world to provide some escapism. This focus on the virtual world to immerse one-self has found support in a recent study by Hoii

and Chong (2017) where it was stated that those who focus on virtual world rather than offline world would be more easily immersed. According to Bourdieu (1986), from the perspective of culture, capital is defined to conceptualize understanding and knowledge of objects, ideologies such as habitus and value of paintings. In games the cultural capital will concretize in the form of knowledge of lore, locations, skills and unspoken rules players are expected to obey or at least understand, such as differentiating between role-play and regular chatting, and how to utilize these to advance one's goals. Therefore, we hypothesize that:

H2: Immersion oriented gaming preference is positively associated with cultural capital of the avatar.

Humans are social animals, therefore, it is not a wonder that scholars have extensively given attention to how social life has transformed as a result of digitalization (Williams, 2006) and explosive rise in popularity of video games in this millennium (Ducheneaut et al., 2006, Williams et al., 2006). Social gaming preference dimensions pertains to playing focus on socializing with other avatars in-game by helping them, forming long-lasting meaningful relationships and deriving satisfaction from working with others in groups. In-game, this focus turns into various types of relationships between other avatars. Commonly avatars are part of one server(-group) and can meaningfully interact only with other avatars from the same server. This means that avatars form different types of social relationships with others

ranging from close friends to being part of server's community. Social capital is defined as connections and networks among individuals and groups (Bourdieu, 1986; Putnam, 2000). In the light of previous research, it is feasible to presume that:

H3: Socially oriented gaming preference is positively associated with social capital of the avatar.

Methods and data

Measurement

An online survey was conducted amidst players of Final Fantasy XIV (n=905). The survey was managed through SurveyGizmo online questionnaire tool. It took participants around 20 to 25 minutes to fill it. Players of Final Fantasy XIV (FFXIV) were chosen because FFXIV is a direct competitor for World of Warcraft in the MMORPG market and results of this study are comparable. Additionally, prior experience and knowledge about the genre ensured greatly more valid operationalization of types of capital.

Existing measurement instruments were employed (Williams, 2006; Yee, 2006) to measure social capital and player's gaming orientation. These existing instruments by Yee (2006) and Williams (2006) were chosen to be part of the survey for their fitness and scope for the context of the study. For measuring avatar capital (or capital more generally), there

are currently no standardized and validated measurement instruments for other forms of capital than social capital (Williams, 2006). Therefore, measurement items for cultural, economic and symbolic capital were developed based on hundreds of hours and multiple years of experience with FFXIV and MMORPGs.

Customized version of Williams' (2006) online social capital scale was utilized to measure social capital. Adjustments were made to fit the scale in the context of FFXIV. Two items were omitted as they do not have equivalent in-game manifestation, as they were related to real-life currency. Currencies in FFXIV are purely digital and in effect inside the game, and thus have no effect on offline life. After omitting two items from Williams' scale, 18 items were remaining to measure social capital.

Economic capital was measured, using 22 items, how much a player possesses different economic assets, goods and currencies. Cultural capital measured player's understanding of the game's various elements following the definitions of cultural capital by Bourdieu (1986) and in what ways the player possibly shares the gained knowledge to others. This included items that measured the respondent's knowledge and understanding of the game's functionalities, mechanics, lore and the amount of achievement points they had. This was accomplished with 16 items. Symbolic capital was operationalized to measure the legitimization of other capital, such as recognition in-game through numerous achievements.

The 20 items included the ownership of rare mounts, pets or titles and if the avatar is recognized in the server by other players through gear, titles, avatar's name, behavior, achievements, for example.

To assess more widely the participants' life in the game, their veteran rank, which indicates how long player has been subscribed to and therefore played the game, at the time of survey was asked. The effect this demographic variable has on capital was measured in a similar manner as player's orientation towards avatar capital was.

Participants

Players of FFXIV were recruited through official forums' English-speaking section, FFXIV subreddit, Discord server and three Facebook groups. Moderators and admins were contacted beforehand and asked for permission to post the survey. The survey was open from March 16th to April 14th, 2017. At the time of closing the survey, there was a total of 1002 completed responses, and after cleaning up the data, a total of 905 completed answers remain. The 97 discarded responses were for having chosen the same option every time or failed to pass the attention check by selecting wrong option for the control question that was positioned in latter half of the survey to ensure respondents read all items and answered accordingly.

The majority of respondents were male, 574 out of 905 (63.4%). The average age of respondents was 27.2 (StdDev = 6.0; Median = 26), with the youngest being 14 and the oldest 55 years old. Almost half of all respondents were from USA (447, 49.3%), United Kingdom (91, 10%) and Canada (90, 9.9%) following next. Other larger represented countries were Germany (40, 4.4%) and Finland (31, 3.4%). In similar fashion, almost two-thirds (599, 66.1%) of respondents reported playing on the North American data center, while 274 (30.2%) played on the European data center with a minority of players on Japanese data center. A bit over half were employed, either full-time (363 responses, 40.10%) or part-time (99 responses, 10.90%), 244 (26.90%) were students, 144 (15.90%) were unemployed and rest of the players were disabled, retired, stay at home parents, or working alongside studies. A large majority of players were playing using PC (675, 74.5%) and PlayStation 4 (224, 24.7%). An extremely small minority of players were playing using a Mac (2, 0.2%) with a total of 5 (0.6%) playing on the PlayStation 3.

Over a fifth of respondents (204, 22.50%) were at veteran rank 13, implying they have been subscribed to FFXIV for at least three years and 92 (10.20%) are at the current maximum veteran rank 14, which requires being subscribed for four years. This is possible because players can pay subscription fees up to 6 months beforehand. FFXIV was re-released after a failed launch in 2010 at the end of August 2013. Other veteran ranks had more even

representation. It should be noted that since the survey was closed, veteran rank system was reworked to consist of four ranks that is reached after 330 days subscribed.

Respondent spends almost 25 hours on average playing FFXIV in a seven-day period. However, half of the players reported playing between 11 and 30 hours per week, with four categories included (divided into 5-hour sections) having almost identical representation, ranging from 12.00% to 13.80% of answers. This high number of in-game active hours and veteran rank was further mirrored in the activity regarding FFXIV themed social media channels, as the clear majority (636, 70.20%) reported visiting these sites at least couple times a week ("Almost daily" answer).

The main foci of the players were asked and overwhelming majority (796, 88.05%) reported player-versus-environment to be one of their foci. Second most common focus area was socializing (432, 47.78%) with third being collecting vanity items (336, 37.17%). The other types of foci (gathering, crafting, player-versus-player, money-making, role-play) were reported to be one of the foci by less than third of the players at the time of data gathering.

In the game it is possible to create multiple avatars, but it is not often seen as feasible option as the game allows for leveling up multiple classes and jobs on the same character. Combined with the heavy story focus of the game, vast majority of players play actively just one avatar. Of these avatars created most were female (540, 59.60%), which means that to

some degree gender switching is present. Also, feline-like race, Miqo'te, was the most popular race with 292 (32.20%) avatars, followed by human-like race, Hyur, with 183 (20.25%) avatars and horned and scaled race, Au Ra, with 183 avatars. The child-like race, Lalafell, was played by 119 (13.1%) players, with elf-like race, Elezen, had 79 (8.70%) players and large, muscular race, Roegadyn, with a smallest representative sample of 50 (5.50%) players.

Validity and Reliability

The data was analyzed utilizing component-based structural equation modeling (in SmartPLS 3.0 program) (Lowry and Gaskin, 2014; Ringle, Wende and Becker, 2015) which is appropriate for prediction-oriented studies and when research model includes both reflective latent and formative variables (Chin, 1988; Hair et al., 2014).

To assess the convergent validity for each latent variable, the average variance extracted (AVE) and composite reliability (CR) were calculated. AVE value should be greater than 0.5 to indicate the convergent validity and the CR value for reliability should surpass 0.7 (Fornell and Larcker, 1981). It can be concluded the convergent validity was met for player orientation and avatar capital. Table 2 shows the CR and AVE analysis results for variance and reliability. As CR and AVE are not applicable for formative constructs, variance

inflation factors (VIF) were further calculated for each item of the formative constructs to assess validity. VIF-values are recommended to remain under the threshold of 5 (Ringle et al., 2015). All values were lower than 3.4. To assess discriminant validity, Fornell-Larcker criterion and heterotrait-monotrait (HTMT) values were calculated (Table 3). To satisfy the Fornell-Larcker-criterion, the correlation between a construct and every other construct must be less than the square root of AVE for said construct (bolded figures on the diagonal). To satisfy the heterotrait-monotrait criterion, each value must equal less than 0.85 (Henseler, Ringle and Sarstedt, 2015). It can be concluded that discriminant validity was met. HTMT discriminant validity assessment only applies to reflective consorts, and therefore, formative constructs (cultural, economic and symbolic capital) are not displayed in the HTMT criterion table.

The filtered sample size of 905 respondents greatly exceeds lower limits for minimum recommended sample size. A model that has constructs with three to four items, minimum of 150 respondents is needed for validity (Anderson and Gerbing, 1984). Bentler and Chou (1987) proposed stricter tiniest number of respondents, five cases per observed variable. In this study, that number would be 555 respondents.

Results

Analysis shows that 54.3% of the variance for cultural capital, 20.7% for economic capital, 58.5% for social capital and 39.0% for symbolic capital was explained by the player's gaming orientations and avatar's demographics. Cohen (1988) suggested that if R^2-value is over 0.26, the variance explained is substantial, moderate if the value is over 0.13 and weak for values over 0.02. Therefore, the R^2-values of types of capital explained a significant amount of variance.

Table 4 illustrates full results with statistically significant association values bolded. Relating to the relationship between player orientations and cultural capital it was found that achievement-mechanics (β = 0.146**), immersion-customization (β = 0.243**), immersion-discovery (β = 0.184**), immersion-escapism (β = 0.055*), immersion-role-playing (β = 0.334**), social-relationship (β = 0.103**) and social-socializing (β = 0.073*) were associated with cultural capital. Economic capital was found to be associated with achievement-advancement (β = 0.111*), achievement-competition (β = 0.142**), achievement-mechanics (β = 0.187**), social-relationship (β = 0.096*) and social-teamwork (β = 0.089*) player orientations. Social capital was found to be associated with immersion-customization (β = 0.057*), immersion-escapism (β = 0.073**), immersion-role-playing (β = -0.056*), social-relationship (β = 0.440**), social-socializing (β = 0.318**) and social-teamwork (β = 0.092**) player orientations. Symbolic capital was found to be associated

with achievement-advancement (β = 0.156**), achievement-competition (β = 0.099**), achievement-mechanics (β = 0.091*), social-relationship (β = 0.278**) and social-teamwork (β = 0.154**) orientations. Additionally, veteran rank (β = 0.261**) of the avatar were associated with symbolic capital.

Discussion, limitations and future work

This study investigated the relationship between player orientation and forms of capital (economic, cultural, social and symbolic) that their avatar command. The data was gathered through an online survey (n=905) amidst the players of a MMORPG, Final Fantasy XIV. The results showed that avatar's cultural capital was predicted by player's orientation towards achievement-mechanics, immersion and social aspects of games. Economic capital was predicted by player's orientation towards achievement and relationship sides of games. Social capital was predicted by players' orientation towards immersion and social parts of games, and in-game interests of the player. Symbolic capital was predicted by player's orientation towards achievement and social orientations.

All proposed hypotheses were supported by the data. Related to H1, each sub-dimension of achievement orientation was positively associated with both economic and

symbolic capital. Relating to H2, the results indicate that each sub-dimensions of immersion orientation were positively associated with cultural capital. Relating to H3, the results show that all sub-dimensions of social gaming orientations were positively associated with social capital of the avatar. However, those associations in the data that also emerged outside the expected ones warrant further discussion.

For avatar's cultural capital we also found that achievement-mechanics, social-relationship and social-socialization were positively associated with cultural capital. As the player is interested in how the game works, they are naturally drawn to test and figure out different boundaries of game's systems. This in turn raises their knowledge of the game helping them reach their goals. Regarding social-relationship and social-socialization being associated with cultural capital, having active social networks in the game increases the likelihood of sharing information with others regarding how game's various systems and world work.

For avatar's economic capital we additionally found that social-relationship and social-teamwork were positively associated in addition to the achievement-orientation and its subcategories. Reasons for these associations according the data are that having close ties with other avatars in-game allows for giving and receiving economical assets, while spending time in a team enables avatars to tackle group content that rewards various economical assets.

For avatar's social capital we found that along with social-orientation, immersion-customization, immersion-escapism and immersion-role-playing were positively associated. While immersion-orientated players are not playing purely because of social reasons or ties, these associations give insight as to how they spend their time in social circles. Customization and role-playing are somewhat overlapping, especially if avatar is used for role-playing. The ability to customize one's avatar is important, and many seem to care how their avatar are represented and expressed in a virtual world. For some, in addition, the game world can offer a place to escape real life worries by immersing themselves into a virtual world, giving the chance to talk about topics related to the game pushing real life to the background for a while.

For avatar's symbolic capital we also found that social-relationship, social-teamwork and veteran rank were positively associated. One reason for the associations with social subcomponents is that avatars are recognized in their intimate social circles for various reasons. Wheres those who focus on teamwork are recognized within the team they are played with and after achieving feats, recognized by other players through titles, for example. However, veteran rank's positive association with symbolic capital is not tied to certain player orientations that focus solely on finding ways acquire rare items to show off, but rather accumulating these items and feats over periods of time.

Additional discussion is warranted to explore the relationship between social motivation and social capital in-game to see whether the abstract side of sociability transforms into concrete resources in a virtual world. Some of the subcomponents from social motivation component were found to be positively associated with other types of capital, rather than just social capital. This gives more support to the claim that ultimately focusing on only social aspects of online video gaming is not holistic enough and can be extremely limiting in terms of generalization of the study.

The results promote the view that the formation of avatar capital is a complex phenomenon where avatars possess differing levels of multiple forms of capital and which depends on their gaming orientation. Additionally, the complexity regarding the formation of types of capital indicates that the digitalized lives in the virtual worlds can be just as intricate as everyday lives with multifaceted systems active any given time. It should be noted that there might be other underlying factors in play that need to be theorized, found and studied. These findings support Walsh and Apperley's (2008) claim that players and gamers alike have multiple forms of capital in their possession.

The amounts of capital can be thought to fluctuate over time as players start and stop playing the game or focus on other things in-game. For example, at the time of the data gathering, large portion of players have been playing FFXIV for at least several months,

some over three years. As veteran rank was significantly associated with symbolic capital, it

is not surprising that avatars accumulate symbolic capital over the years they play FFXIV.

Pertaining to the related literature regarding avatars in the context of games, the

results support the findings in the literature. Player-avatar identification and interaction is

indeed complex and multimodal in its nature (Downs et al, 2017; Mancini et al., 2019; Tseng

et al., 2018). This study approached the scarcely studied aspect of the resourcefulness, or

materiality, of avatars by linking them to the online gaming motivations of the player (see

e.g. Banks et al., 2017). Player orientations do translate into in-game, and more importantly

digital, resources that can be controlled directly. Therefore, this study contributes to the

interesting phenomenon of the relationship between player and their avatar(s) by empirically

studying the relationship between player orientations and avatar capital. Hopefully in the

future other scholars interested in mapping out players' resources find this approach and the

developed survey useful in their studies.

As the types of capital in games have previously not been approached this widely, the

way they were presented in this study are subject to change. It might be necessary to extend

existing forms of capital or present new ones to fit the precise needs of avatar studies, much

like what Consalvo (2007) did with cultural capital. Bourdieu's (1986) framework of capital

was successfully transferred to purely virtual context. The way the framework was utilized

was one step deeper the way Walsh and Apperley (2008) utilized Bourdieu's (1986) framework.

For practitioners in the video game industry, this study affords an interesting avenue to measure avatar's capital, and how they are amassed and expended. When the relationship between player orientations and avatar capital is known, or it is predictable, it is possible to more precisely develop and implement systems into a game that actualizes the player orientations. Thus, if players have a way to concretize their orientations in-game, they most likely will keep playing for longer. One way to appeal for achievement-oriented players is to have different types of items to collect in-game with varying rarities from wide array of in-game systems such as dungeons and rare monsters. Having access to the data gathered while playing a game would increase the accuracy of the items and they would not rely on the responder's memory or other fallible aspects that might skew the results (see e.g. Kahn, Ratan and Williams, 2014) when the context is within online video games. Some items, especially regarding social aspects such as recognition and habitus, would still need direct player contact in terms of survey or interview.

Moreover, games and other contexts have many specificities regarding terminology, therefore, measuring avatar capital on a granular level requires context-specific adjustments. The game's functions present challenges, as games use different battle, leveling and questing

systems, and therefore, the accurate measurement per game will differentiate to a degree. Even though players' knowledge increases, it does so in a way that is dependent on the game. The future efforts on the research on avatar capital should seek to further develop and validate the measurement in numerous other MMORPGs and other virtual contexts by making the survey as game- or genreagnostic as possible.

This study contributed to the avatar and capital studies in two ways. Firstly, by initiating the development of measurement and study of economic, cultural and symbolic capital of avatars. Secondly, by delineating on the relationship between player orientation and avatar capital. The development of the measurement instrument will continue and will be further elaborated in further studies.

As is commonplace with SEM-based studies, the survey data is cross-sectional, and therefore, inferences about the causality cannot be ascertained with certainty. However, our independent variables can be considered more static traits of players, whereas the dependent variables related to player capital can be assumed to fluctuate more rapidly. Therefore, it is reasonable to assume that player capital in any given game is more dependent on player orientation rather than the other way around.

Acknowledgements

Placeholders. Placeholders. Placeholders.

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Table 1. Key constructs

Construct	Definition	Originator
Social capital	Quality and quantity of social networks in-game	Adapted from Williams (2006) that is based on Putnam (2000)
Economic capital	Monetary value of belongings and currencies of the avatar	Authors
Cultural capital	Endowment of the game's rules, systems, functions, mechanics, lore	Authors, based on Bourdieu's (1986) conceptualization
Symbolic ccapital	Recognition and legitimization of the avatar's deeds in the game world by NPCs or other avatars through (vanity) items and avatar expression	Authors, based on Bourdieu's (1986) conceptualization
Achievement orientation	Avatar's desire to gain power, progress and accumulate in-game wealth or status, challenge and compete with other players, analyze and study game's underlying rules and systems	Yee (2006)
Social orientation	Interacting and forming meaningful relationship with other avatars, deriving satisfaction from being part of group effort	Yee (2006)
Immersion orientation	Finding and knowing things most avatar's do not, role-playing, customization of the avatar and using the game to avoid thinking about offline life	Yee (2006)

Table 2. Composite Reliability and AVE

	Items	CR	AVE
Achievement orientation			
Advancement	5	0.833	0.500
Competition	4	0.784	0.556
Mechanics	3	0.858	0.602
Immersion orientation			
Customization	3	0.851	0.657
Discovery	4	0.872	0.631
Escapism	3	0.822	0.608
Role-Playing	4	0.831	0.554
Social orientation			
Relationship	3	0.895	0.740
Socializing	4	0.884	0.658
Teamwork	4	0.750	0.552
Capital			
Cultural	16	Na	Na
Economic	22	Na	Na
Social	18	0.926	0.512
Symbolic	20	Na	Na
Demographics of the avatars			
Veteran Rank		1.000	1.000

Table 3. Fornell-Larcker and Heterotrait-Monotrait Values

Fornell-Larcker Criterion

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Advancement	**0.707**														
2 Competition	0.510	**0.746**													
3 Mechanics	0.591	0.430	**0.776**												
4 Customization	0.218	0.082	0.126	**0.810**											
5 Discovery	0.093	0.014	-0.002	0.401	**0.794**										
6 Escapism	0.104	0.026	-0.021	0.233	0.229	**0.780**									
7 Role-Playing	0.059	0.028	-0.021	0.365	0.477	0.383	**0.744**								
8 Relationship	0.196	0.195	0.140	0.270	0.259	0.271	0.331	**0.860**							
9 Socializing	0.151	0.121	0.068	0.261	0.352	0.273	0.352	0.525	**0.811**						
10 Teamwork	0.275	0.229	0.307	0.135	0.068	0.062	0.099	0.367	0.488	**0.743**					
11 Veteran Rank	0.074	0.090	0.125	-0.054	0.121	-0.036	-0.041	0.128	-0.082	0.035	**1**				
12 CCapital	0.241	0.102	0.196	0.525	0.508	0.331	0.590	0.400	0.400	0.201	0.006	**N/A**			
13 ECapital	0.352	0.320	0.367	0.181	0.055	0.040	0.027	0.192	0.094	0.226	0.076	0.189	**N/A**		
14 SCapital	0.229	0.204	0.136	0.281	0.281	0.291	0.281	0.676	0.633	0.431	0.010	0.478	0.201	**0.715**	
15 SyCapital	0.386	0.331	0.352	0.185	0.159	0.084	0.081	0.420	0.215	0.346	0.341	0.316	0.338	0.436	**N/A**

Heterotrait-Monotrait Ratio

	1	2	3	4	5	6	7	8	9	10	11	12
1 Advancement												
2 Competition	0.705											
3 Mechanics	0.774	0.573										
4 Customization	0.298	0.121	0.166									
5 Discovery	0.181	0.063	0.066	0.499								
6 Escapism	0.190	0.074	0.109	0.327	0.315							
7 Role-Playing	0.210	0.100	0.145	0.504	0.632	0.554						
8 Relationship	0.233	0.235	0.160	0.337	0.309	0.366	0.426					
9 Socializing	0.224	0.252	0.158	0.338	0.449	0.372	0.473	0.611				
10 Teamwork	0.447	0.270	0.409	0.194	0.231	0.132	0.189	0.430	0.535			
11 Veteran Rank	0.082	0.122	0.142	0.062	0.138	0.056	0.049	0.138	0.098	0.057		
12 SCapital	0.274	0.250	0.163	0.355	0.325	0.370	0.351	0.767	0.726	0.482	0.081	

Table 4. Results (* = p < 0.05, ** = p < 0.01, significant associations bolded)

	Beta	p	f²	Beta	p	f²
	Cultural Capital (R² = 0.543)			*Economic Capital (R² = 0.207)*		
Achievement-Advancement	0.055	0.130	0.004	**0.111***	**0.012**	0.008
Achievement-Competition	-0.049	0.096	0.004	**0.142****	**0.001**	0.018
Achievement-Mechanics	**0.146****	**0.005**	0.027	**0.187****	**0.001**	0.026
Immersion-Customization	**0.243****	**>0.000**	0.096	0.113	0.124	0.012
Immersion-Discovery	**0.184****	**>0.000**	0.048	0.007	0.882	0.000
Immersion-Escapism	**0.055***	**0.047**	0.005	0.003	0.928	0.000
Immersion-Role-Playing	**0.334****	**>0.000**	0.156	-0.043	0.252	0.002
Social-Relationship	**0.103****	**0.001**	0.015	**0.096***	**0.017**	0.007
Social-Socializing	**0.073***	**0.040**	0.006	-0.062	0.170	0.003
Social-Teamwork	-0.002	0.961	0.000	**0.089***	**0.035**	0.006
Veteran Rank	-0.012	0.680	0.000	0.015	0.702	0.000

	Beta	p	f²	Beta	p	f²
	Social Capital (R² = 0.585)			*Symbolic Capital (R² = 0.390)*		
Achievement-Advancement	0.042	0.173	0.002	**0.156****	**0.001**	0.022
Achievement-Competition	0.044	0.093	0.003	**0.099****	**0.004**	0.011
Achievement-Mechanics	-0.023	0.418	0.001	**0.091***	**0.014**	0.008
Immersion-Customization	**0.057***	**0.033**	0.006	0.063	0.131	0.005
Immersion-Discovery	0.035	0.181	0.002	0.044	0.247	0.002
Immersion-Escapism	**0.073****	**0.007**	0.010	-0.001	0.966	0.000
Immersion-Role-Playing	**-0.056***	**0.033**	0.005	-0.055	0.169	0.003
Social-Relationship	**0.440****	**>0.000**	0.293	**0.278****	**>0.000**	0.080
Social-Socializing	**0.318****	**>0.000**	0.127	-0.039	0.476	0.001
Social-Teamwork	**0.092****	**0.002**	0.013	**0.154****	**>0.000**	0.026
Veteran Rank	-0.028	0.259	0.002	**0.261****	**>0.000**	0.099