

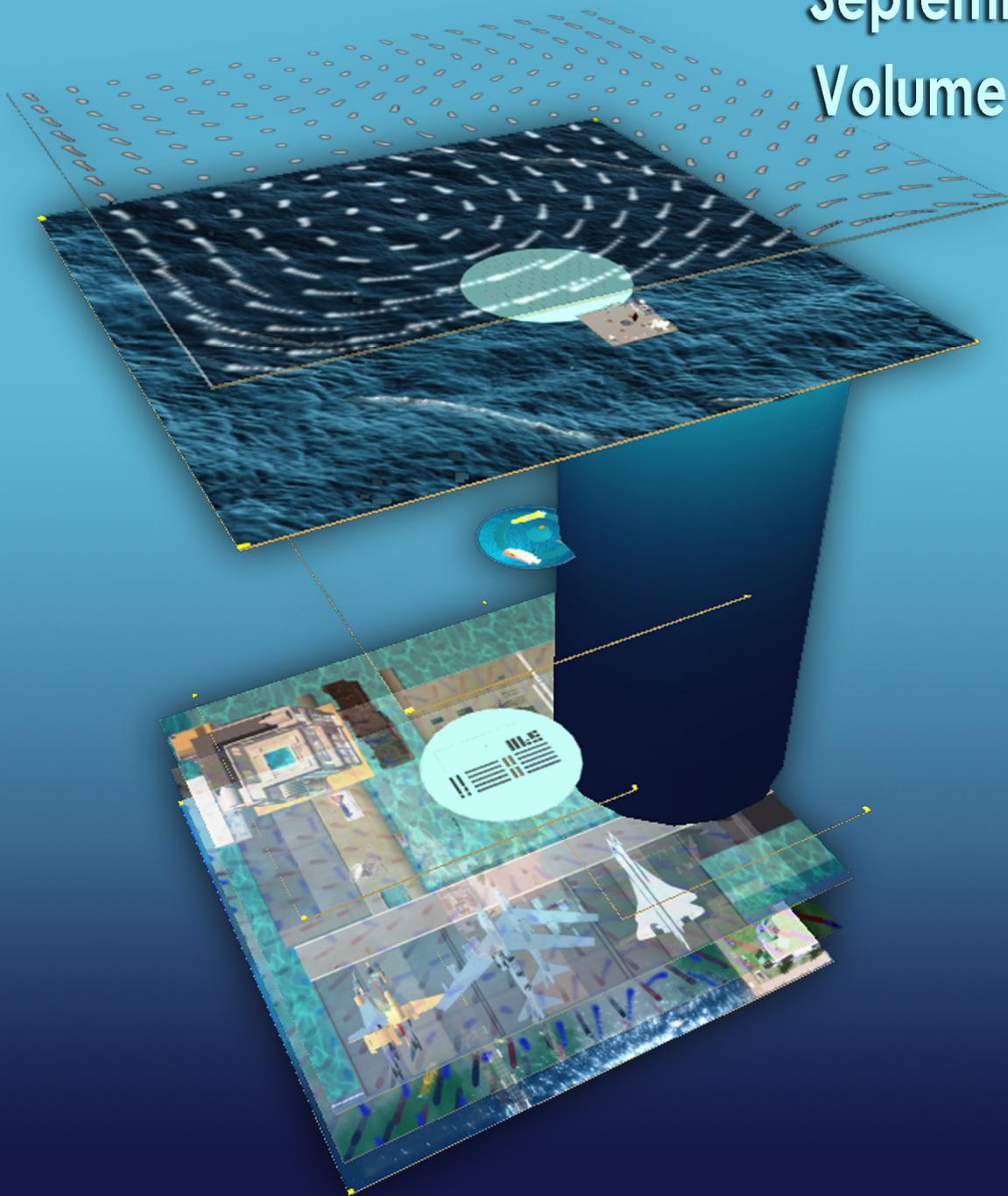
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Demographic Characteristics, Play Patterns, and Social Experiences of Chinese MMO Players

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Abstract

Knowledge of who plays and how is necessary for a meaningful understanding of behaviors in the virtual world (e.g. Williams et al., 2009). Despite increasing use of Massively Multiplayer Online games (MMOs) in China, systematic investigation of the demographic characteristics, play patterns and social experience of Chinese players is limited. Based on a web survey of players of a popular Chinese MMO ($N = 18,819$), this study examines the demographic distribution of Chinese MMO players and its relationship to their play patterns and social experience. The results suggest that compared to male players, Chinese female players engage in more text chat, are more likely to play with both offline and new friends, and perceive a higher salience of social capital. Older players engage in less chat and are less motivated by social interaction and story narratives. But they are more likely to play with their romantic partners and have a higher trust of other people in the game and in the same guild. Implications of the findings are discussed with a focus on the potential socio-cultural influence on virtual behaviors.

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1. Introduction

In recent years, there has been a steady increase in the use of Massively Multiplayer Online games (MMOs) in East Asia. Particularly in China, MMO has attracted an enormous amount of users, which was estimated to be 180 million in 2011 (Niko Partners, 2012). The rising popularity of MMO use in China has contributed to a burgeoning market of virtual worlds with an estimated valuation of \$11 billion (Pearl Research, 2012). Despite the size of the Chinese MMO market and the volume of Chinese MMO users, however, there is little knowledge about who the Chinese players are, how they play the games, and what they think about their experience. Empirical investigation of Chinese players so far has been restricted to ethnographic accounts and survey studies with small samples of players (e.g. C.-I. Hou, 2008; Nardi, 2010; Teng, 2008). Extant research on Chinese MMO players has also been confined to gold farming activities, group play at Internet cafes or game addictions (e.g. Gilmore, 2010; Jiang, 2008; M. Liu & Peng, 2008).

The limited reports on Chinese MMO players so far have therefore revealed an incomplete picture. For example, there have been reports on Chinese MMO players who work as over-exploited gold farmers – organized groups of players engaging in tedious in-game labor with the sole purpose of trading virtual currencies, items and equipment on unauthorized virtual markets (Nardi, 2010). Vivid stories portray the mishaps of some Chinese players who have to go through torturous rehabilitation programs (Stewart, 2010). Recent studies have revealed the patterns of motivation, preference and social experience of Chinese MMO players. For example, Nardi provides a vivid account of how *World of Warcraft* has become an important medium for aesthetic expression, social interaction and for some, entrepreneurship (Nardi, 2010). Nevertheless, academic research about MMOs in China has been constrained by the lack of comprehensive data about basic demographic, social and psychological characteristics of Chinese MMO players.

It is necessary to build “baseline” knowledge of MMO players in China. Such knowledge is not only useful for constructing a more complete story of Chinese MMO use. It also serves as the basis for the investigation of the social and cultural context for the use of MMOs in one of the world’s biggest market for virtual worlds. There are two reasons that demographic profiling of Chinese MMO players is relevant and important. First, it helps researchers extend the mapping principle for virtual world research and examine the extent to which the social dynamics of gender roles, age and groups in different cultural contexts are carried over in the virtual world (Williams, 2010). This effort illuminates possible ways to study how online games serve as a social playground in which both universal appeals for fun, socialization and competition and distinct cultural attributes in specific societies manifest themselves. As a result, the so-called cultural differences can be defined and refined in a virtual environment (Hofstede & McCrae, 2004). Second, the context of China as a study site is significant, not only because it is a sizable market in terms of economy and user base, but also because online games, along with other Internet-based media, are playing an increasingly intricate role in the social and cultural transformation in China (Hjorth, 2010). It is worthwhile to examine how new media technologies facilitate or constrain self expression, relationship management and community participation in a society that is more often associated with censorship and conformity (Guo & Feng, 2012). And online games can provide a useful context for this endeavor.

With a large web survey for one of the most popular MMOs in China, *Chevaliers’ Romance III* (CR3), this study provides a preliminary report on the demographic distribution, play patterns and social experience of Chinese MMO players. With cooperation from a major Chinese online game company, this study is one of the first efforts at uncovering the “ground truth” of the gender, age, and social

patterns of Chinese MMO players. The results pave the way for a better understanding of the social use and impact of MMOs and virtual worlds in China.

2. Demographics

Video games have been hailed as a leveled social play ground (Williams, 2006). Games like *World of Warcraft* have been shown to attract sustained interests from people of all ages, cultural backgrounds and socioeconomic statuses (Steinkuehler & Williams, 2006). Recent census-style research based on large-scale web surveys in North America reveals interesting facts that defy common stereotypes about game players. For example, players of a popular MMO *Everquest II* were found to be older, financially better off and physically healthier than the general population in the US (Williams, Yee, & Caplan, 2008). Contrary to research that found the broad population of virtual worlds users to be under the age of 20 according to estimates (Spence, 2008), the online survey revealed that *Everquest II* players were on average 31.2 years old. Players in their thirties constituted 36.7% of the *Everquest II* user base, compared to only 12.4% of the players in the age range of 18 and 22 (Williams, et al., 2008). Such findings are significant, because they provide the necessary “ground truth” for a more balanced and comprehensive understanding of the social impact of a prevalent technology like MMO.

Yet because of the limited access to user bases operated by different game companies, it is often difficult to replicate such efforts. Despite its wide use, popular perception of MMO players in China has therefore been skewed by anecdotal reports about addiction, gold farming and aggression (cf Heeks, 2009; C. Liu, Liao, & Smith, 2012; M. Liu & Peng, 2008). Gold farming received particularly strong attention from both academia and the general public. Gold farming refers to the collection and sales of virtual currencies, items, equipment and other resources that are often unauthorized by the game operators (Heeks, 2009). Such activities often involve organized intensive in-game labor by players in underdeveloped countries like China and Mexico. As a result, the reports on gold farming often focus on the unusual, sometimes unethical, working conditions of the so-called “gold farmers” in dramatic contrast to the more relaxed, playful context of MMO play in the US (Vincent, 2011). Such reports have resulted in a generally skewed portrait of Chinese players as predominantly young males spending days and nights playing in Internet cafes (Dibbell, 2007). Despite recent research efforts (e.g. Nardi, 2010), a comprehensive profile of who the Chinese MMO players are, how do they play and why they play is needed.

There is value in knowing the demographic distribution of Chinese MMO player population, as evidence regularly suggests a strong influence of demographic attributes such as age and gender on players’ in-game behavior, experience and motivations (Eden, Maloney, & Bowman, 2010; Quandt, Grueninger, & Wimmer, 2009; Williams, Consalvo, Caplan, & Yee, 2009). Players’ virtual behaviors are also directly related to where they play (physical locations) and how they play (with friends) (Chee, 2006; Jiang, 2008). Precisely because of the focus on social interaction and collaborative play in MMOs, the discussion of social experience in MMOs must be grounded in a detailed understanding of players’ gender, age stages, geographic location and physical settings. Demographic profiling of Chinese MMO players also makes it possible to compare the findings from US-based research with other regions, so that the universal trends and distinct regional characteristics can be identified. For example, MMO players were found to be on average 31.2 years old and 81% likely to be males in the U.S (Williams, et al, 2008). It is reasonable to assume that MMOs may have become an age-inclusive yet gender-biased entertainment technology (Steinkuehler & Williams, 2006). Yet it is useful to consider this potential for MMOs in a country where the overall age distribution and gender ratio are different from the US (United Nations Statistics Division, 2009). If achievement was found to be the strongest motivation for

American MMO players (Williams, et al, 2008), it is worthwhile to examine if similar motivations drive the use of MMOs in China. The demographic, social and motivational patterns of MMO use provide the basis for understanding the use and social impact of MMOs and virtual worlds in general in China.

Three broad research questions are therefore first proposed:

RQ1: What are the age, gender, educational and socioeconomic distributions of Chinese MMO players?

RQ2: What is the geographic pattern of play for Chinese MMO players?

RQ3: What are the motivations in game for Chinese MMO players?

2.1 Gender

One of the most interesting findings from recent studies about MMOs is the effect of gender (e.g. Eden, et al., 2010; Eklund, 2011; Williams, et al., 2009). Male and female players have a drastically different pattern of play, which can be reflected in the time they spent playing and the self-reported motivations (Williams, et al., 2009). As a result, male and female gamers may reap different kinds of practical and psychological benefits. For example, female gamers may strategically choose their avatar appearance and are happier in general than male gamers (Eklund, 2011; Williams, et al., 2009). Male players tend to focus on competition and achievement, and most often are more successful in terms of avatar development (Eden, et al., 2010; Williams, et al., 2009). Research about the gender effect in the virtual world has provided interesting insights for rethinking gender role theory in the virtual world.

From a cross-cultural perspective, it is interesting to examine if such gendered play patterns persist in a society such as China. In China, gender stereotype has been vividly manifested in many corners of society (Louie, 2002). Particularly in media and communication studies, scholars have found that Chinese women tend to be heavy consumers of specific genres of media content such as romance (Louie, 2002), but have much less exposure to new technologies such as instant messaging and email in the early stage of the Internet in late 1990s (Singh, 2001). Recent studies, however, reveal that there is a potential transformation in women's participation in online activities particularly related to social networking (Zhang & Lu, 2011). There is some evidence that Chinese women are gradually increasing their use of online games, but for very different reasons and motivations (J. Hou, 2011). For example, they tend to place a strong focus on the social and fun aspects of games, especially on popular social networks (Oreglia, 2009/2010). It is reasonable to assume that as MMO use is stably increasing, Chinese women players will also demonstrate such preference for social networking with old and new friends. A research question is thus formulated:

RQ4: What is the gender difference in Chinese MMO players' play pattern, social experience and community perceptions?

2.2 Age

Evidence has emerged that people of different ages use video games in different ways. Particularly in online games, research reveals that players of MMOs tend to be older than generally believed, aged 31.1 years on average (Williams, et al., 2008). This phenomenon suggests that if age distribution is more spread out than previously thought, age may have a more subtle effect on in-game behavior and experiences. Indeed, studies on older gamers have revealed that they tend to have a very strong preference for social interaction, yet do not feel strongly connected with other players (Quandt, et al., 2009). Other research also noted that players in different age groups also adopt very different attitudes

towards communication, achievement and openness in the virtual environment (Griffiths, Davies, & Chappell, 2004).

As generational differences can take on different social and cultural meanings, this age pattern of game use may vary across different societies. For example, research has revealed that the expectation for appropriate behaviors on school children differ greatly across China and the US (Jessor, et al., 2003). As there are different social norms associated with workplaces and homes, people are also expected to engage in less leisure activities as they grow older and assume roles as office workers and breadwinners in China. There are also some significant generational differences in China regarding the use of communication technologies (Pan & Jordan-Marsh, 2010). This is because older people tend to have more stable social circle and are more willing to strengthen and deepen their current social circles rather than exploring new ties. This results in a much different motivation for older Chinese people to use mobile phones, social networking sites and video games (Chua & Choib, 2010). There is also the need for identifying the potential effect of age on Chinese MMO players' behavior and experience in the game.

RQ5: What is the influence of age on Chinese MMO players' play patterns, social experience and community perceptions?

3. Method

3.1 Procedures

Working under a Non-Disclosure Agreement (NDA) with a Chinese game company, a large research team developed an online survey to gather the demographic information, play patterns and social experiences related to the game *Chevaliers' Romance III* (CR3) (<http://jx3.xoyo.com/index>). CR3 is a fantasy-based online game that combines the game mechanics of traditional MMOs with a theme of swordsmen and Shaolin monks set in Tang Dynasty. Branded as an MMO Action Role Playing Game (MMOARPG), CR3 centers its storylines on the rivalries and battles among seven large factions that originate in the fictional Chinese Kung-fu literature. Player-versus-player battles are enabled by default, so that individual or group-based peer fighting sessions are a dominant part of the game play experience. While lacking a mature guild system as American-developed games such as *World of Warcraft*, CR3 employs a comprehensive friendship and mentoring system. For example, players can add others as friends and gradually develop mutual affinity with gifting, questing and other play activities. The mentoring system allows players to build explicit mentor-apprentice relationships that become essential for both parties to advance their levels, rankings and wealth in the game. Launched in November 2009, the game is claimed to have around half a million active users as of summer 2011.

The survey was announced by the game company on its official website on October 27, 2011, and the announcement remained active until December 3, 2011. In the announcement, the survey was declared to be a joint research project between the game company and researchers from several US universities. A virtual weapon was offered by the game company as the incentive for participation in the survey. Participants were directed to the survey website with a URL link embedded in the announcement. After agreeing to the consent information, the participants completed the online survey in their web browsers, and were thanked and debriefed at the end of the survey.

3.2 Subjects

The subjects in this study were the players of CR3 who had completed the online survey between October 27 and December 3, 2011. A total of 22,004 responses were collected. Among these responses,

1,225 were incomplete, and 1,960 were determined to be spam by the survey system, both of which were thrown out. As a result, there were 18,819 complete, unique and valid responses in total.

3.3 Material

Players’ demographic information, socioeconomic status and physical settings for playing the game were measured with standard Likert-style items. Players’ game motivation was measured with a 10-item, five-point scale that was currently being validated by Dmitri Williams at University of Southern California (Williams, Khan, Ratan, Hou, & Meng). This scale measured three factors of play motivations: socialization, competition and story-driven. Players’ tendency to play with different social ties, from family members to friends and strangers was assessed with questions like “How often do you play *CR3* with ...?” on a five-point scale with one being “Never” and five standing for “Frequently”. Players’ preference for in-game chat, forum participation, and guild bank contributions was also assessed with similar questions and choices. Players’ attachment to *CR3* as a community of gamers was measured with a six-item, five-point scale developed by Prentice, Miller and Lightdale (1994) (Cronbach’s $\alpha = 0.79$). Social capital was measured with the 20-item, five-point Internet Social Capital Scale (ISCS) developed by Williams (2006) (Bonding social capital, Cronbach’s $\alpha = 0.85$; Bridging social capital, $\alpha = 0.87$).

4. Results

4.1 RQ1: Who Plays?

The results revealed a slightly different profile of regular MMO players in China. The players were predominantly young, with an average age of 23.9 years ($SD = 4.27$). Higher than what was found about *Everquest II* players in the US, *CR3* players in the collage age range of 18 and 22 and in the young adult range of 23 and 29 constituted 40.4% an 49.6% of the sample (See Table 1 for a breakdown of the age groups of *CR3* players). Yet contrary to the popular perception that students make up most of the MMO player population, only 31.2% of the respondents were students. Instead, 64% of the respondents claimed to have a day job, and they reported to have worked a median of 40 hours the week before they took the survey.

Table 1: Age range of *CR3* players

Age range	Percentage	Cumulative Percentage
12 – 17	1.3	1.3
18 – 22	40.4	41.7
23 – 29	49.6	91.4
30 – 39	7.7	99.0
40 – 49	0.8	99.8
50 – 65	0.2	100.0

The respondents were mostly well educated, with 66.2% holding a Bachelor’s college degree or higher and only 0.5% claiming to be illiterate or self-educated (See Table 2 for a breakdown of the educational status of *CR3* players). In terms of the *CR3* players’ social relational status, 59.3% of the respondents were single, compared to only 38% of them claiming to be dating, in a relationship or

married. For the respondents who claimed to be in a relationship, they reported a higher-than-average degree of satisfaction with their relationship quality ($M = 3.79, SD = 0.74$).

Table 2: Education levels of CR3 players

Educational level	Percentage	Cumulative Percentage
None / Illiterate	0.1	0.1
Self-educated	0.4	0.5
Elementary school	0.2	0.7
Middle (Junior high)	3.0	3.7
High school	12.7	16.3
Associate college*	16.6	32.9
Bachelor's degree	63.4	96.3
Master's degree and above	3.4	99.7
Others	0.3	100.0

*Note. Associate college includes vocational schools, technical training institutes and 2-year colleges.

Compared to the reports on North American players (Williams, et al., 2008), the proportion of female players was higher among the CR3 users (25.5%). Consistent with the ethnic distribution of China, the majority of players were of the Han ethnicity (92%), and seven other major minority ethnicities were all presented in the respondents. In regard to political affiliation, most respondents claimed to be a member of the Chinese Communist Youth League, a mandatory political organization for Chinese individuals between the age of 14 and 28. Only 10.4% of the respondents claimed to be a member of the Communist Party of China, the sole reigning party of China.

With regard to the socioeconomic status of the CR3 players, 52.3% of the respondents lived in a municipality or prefecture-level city with a population of at least half a million. 43% of the respondents lived in a home that they either owned or rented, compared to 22.9% living in a dorm room and 20.9% living in their parents or family members' houses. The average household income for the respondents fell within the category of between 60,000 and 64,999 Chinese Yuan. This income level showed that CR3 players tended to be financially in the middle class category, considering that the average national wages were 37,147 Chinese Yuan according to 2010 census statistics (National Bureau of Statistics of China, 2011).

4.2 RQ2: How They Play?

80.3% of the respondents were playing CR3 at home on a private computer and only 12.5% playing at an Internet café. It also appeared that the CR3 players did not play alone. 86% of the respondents reported that they played the game with friends. For these players, they convinced their friends to play (32.2%) or simply started playing the game together (32.2%). For such play sessions with friends, 73.9% of the respondents played at their own homes or rooms and only 23.9% of them played with friends physically together.

According to the survey responses, CR3 players were very active in communication in the game. On a five-point scale, respondents reported that they often used in-game text chat ($M = 4.27, SD = 0.99$) and voice chat ($M = 4.08, SD = 1.04$). Yet in comparison, they were less likely to engage in face-to-face chat during play ($M = 2.70, SD = 1.25$). The preference for social interaction in CR3 was also reflected in the frequency of playing with different kinds of ties. Also on a five-point scale where one stands for

“Never” and five means “Frequently”, respondents reported they often played with new friends that they knew in the game ($M = 4.03, SD = 0.98$) and sometimes with completely strangers ($M = 3.63, SD = 1.30$). But they very rarely played with their romantic partners ($M = 2.31, SD = 1.45$), immediate relatives ($M = 1.88, SD = 1.20$) or remote relatives ($M = 1.91, SD = 1.20$). Table 3 provides an overview of the statistics reported above.

Table 3: Summary of the descriptive results

Measure	Mean	Standard deviation
Age	23.9	4.27
Satisfaction with the quality of romantic relationship ¹	3.79	0.74
Average household income ²	Chinese RMB 62,500	42,450
Frequency of in-game text chat ³	4.27	0.99
Frequency of voice chat ³	4.08	1.04
Frequency of face-to-face chat ³	2.70	1.25
Frequency of playing with friends that were met in the game ³	4.03	0.98
Frequency of playing with strangers ³	3.63	1.30
Frequency of playing with romantic partners ³	2.31	1.45
Frequency of playing with immediate relatives ³	1.88	1.20
Frequency of playing with remote relatives ³	1.91	1.20
Motivation for socialization in the game ⁴	3.85	0.62
Motivation for story immersion ⁴	4.15	0.75
Motivation for competition ⁴	2.83	0.93

¹Measured with a five-point rating scale, with 1 being “Very bad” and 5 being “Very good”.

²Measured with an increment of 5,000 RMB, with the minimum being “5,000 RMB or less” and the maximum being “99,999 RMB or more”.

³Measured with a five-point rating scale, with 1 being “Never” and 5 being “Frequently”.

⁴Measured with five-point rating scales, with 1 being “Strongly disagree” and 5 being “Strongly agree”.

4.3 RQ3: Why They Play?

Using the game playing motivation scale, the motivations of CR3 players were explored. Respondents’ motivations for competition, social interaction and story-driven gameplay were evaluated with 10 scale items. Confirmatory factor analysis extracted three components with initial eigenvalues higher than 1. After performing a varimax rotation procedure, the factor loadings achieved satisfactory inter-item correlations for all the items across the three components. Table 4 provides the factor loadings for these three subscales.

Table 4: Cross loadings for the game motivation scales

Item \ Component	1	2	3
Socialization1: It's important to me to play with a tightly knit group	.133	.305	.618
Socialization2: I prefer games with a strong overall community	.200	.069	.734
Socialization3: I like to chat with my friends while playing a video game.	.228	-.056	.782
Socialization4: I like to use voice communication when I play.	.084	.125	.765
Competition1: Winning is a big reason for me to play video games.	-.023	.899	.078
Competition2: I play to win.	-.062	.907	.009
Competition3: It is important to me to be the fastest and most skilled person playing the game.	.082	.731	.233
Stories1: I like stories in a game.	.868	-.024	.190
Stories2: I like the feeling of being part of a story.	.882	.034	.157
Stories3: Games should have compelling characters.	.811	-.001	.205

Note. All items were measured with five-point rating scales, with 1 being “Strongly disagree” and 5 being “Strongly agree”.

The resulting subscales also achieved satisfactory reliability scores. Cronbach’s α was 0.74, 0.82 and 0.85 respectively for the sub scales of social interaction, competition and story-driven. On a five-point scale, the respondent reported social interaction and story-driven gameplay to be two strong motivations for playing the game ($M = 3.85, SD = 0.62$; $M = 4.15, SD = 0.75$). In comparison, competition was not considered to be a strong motivation ($M = 2.83, SD = 0.93$).

4.4 RQ4: Gender difference

Given that about 25% of the CR3 player population was comprised of female players, it is interesting to explore if and how men and women play the game in different ways and have different social experience. Independent-samples t-test was conducted to explore this issue.

Overall, female players tended to be younger ($D = 0.42, p < .01$), better educated ($D = 0.37, p < .01$) and financially better off ($D = 8,260, p < .01$) than male players. And they played the game in a slightly more cautious and reserved way, particularly regarding their communication style. Female players tended to use in-game text chat more often than male players ($D = 0.17, p < .05$), but were less active than male players in face-to-face conversations during play ($D = 0.43, p < .01$). Compared to male players, female players were more likely to play with both existing friends ($D = 0.30, p < .01$) and new friends that they first met in the game ($D = 0.29, p < .01$). They were less likely to share their experience over the chat channels ($D = 0.22, p < .01$) or join discussions on the game forums ($D = 0.45, p < .01$), although they more often contribute items or money to their guilds ($D = 0.07, p < .01$). When asked how they would like to make new friends in the game, female respondents were also more likely to find new friends who were of the same gender ($D = 0.06, p < .01$), who they knew offline ($D = 0.20, p < 0.01$), or who have helped before in the game ($D = 0.06, p < .01$).

Although female players were more selective and cautious in making new friends and interacting with others in the game, they did consider social interaction ($D = 0.05, p < .01$) and story-driven gameplay ($D = 0.22, p < .01$) as the main motivation for playing the game than male players. In contrast, female players’ motivation for being competitive in the game was lower than male players ($D = 0.39, p < .01$).

Their focus on social interaction and making new friends in a selective way may have helped them reap some social benefits from the game. For example, female players reported a stronger sense of both bonding ($D = 0.22, p < .01$) and bridging social capital ($D = 0.12, p < .01$) than male players. Female players had a slightly stronger sense of attachment to the CR3 community ($D = 0.03, p < .05$), felt a stronger connection to other players in the game ($D = 0.05, p < .01$), and perceived CR3 to be an overall more open and diverse social environment ($D = 0.16, p < .01$). Table 5 provides an overview of the results reported above.

Table 5: Results from the t-test (Gender)

Measure	Male	Female	Difference (Male-Female)	Standard deviation
Age ¹	24.01	23.59	0.42**	0.078
Frequency of in-game text chat ²	4.23	4.40	-.17*	0.017
Frequency of voice chat ²	4.08	4.10	-0.02**	0.018
Frequency of face-to-face chat ²	2.82	2.39	0.43**	0.021
Frequency of playing with existing offline friends ²	3.23	3.53	-0.30**	0.022
Frequency of playing with new friends met in the game ²	3.96	4.24	-0.29**	0.016
Frequency of sharing experience and tips on in-game channels ²	3.23	3.01	0.22**	0.018
Frequency of participation in game forums ²	2.54	2.09	0.45**	0.019
Frequency of contributing items to guild banks ²	3.28	3.35	-0.07**	0.018
Likelihood of making friends with those of the same gender ³	3.16	3.21	-0.05**	0.014
Likelihood of making friends with those who were known offline ³	3.85	4.05	-0.20**	0.015
Likelihood of making friends with those who have helped me ³	3.83	3.89	-0.06**	0.013
Motivation for social interaction ³	3.83	3.88	-0.05**	0.012
Motivation for competition ³	2.93	2.53	0.40**	0.015
Motivation for stories ³	4.09	4.31	-0.22**	0.012
Bonding social capital ³	3.71	3.93	-0.22**	0.010

Measure	Male	Female	Difference (Male-Female)	Standard deviation
Bridging social capital ³	3.80	3.92	-0.12**	0.011
Attachment to the CR3 community ³	3.53	3.56	-0.03*	0.013
Interpersonal bonds with other CR3 players ³	3.25	3.30	-0.05**	0.013

* $p < .05$; ** $p < .01$

¹Measured with the self-reported birth year and birth month, and calculated by counting the years towards the time of the survey.

²Measured with five-point rating scales, with 1 being “Never” and 5 being “Frequently”.

³Measured with five-point rating scales, with 1 being “Strongly disagree” and 5 being “Strongly agree”.

4.5 RQ5: Age Effect

A categorical variable was created to divide respondents into two groups: the younger player group whose age was lower than the sample media age (23.08), and the older player group whose age was higher than the median age. The t-test was conducted to compare the play patterns and social experiences between the two age groups.

The results suggested that compared to younger players, older players are less likely to engage in in-game text chat ($D = 0.11, p < .01$), voice chat ($D = 0.08, p < .01$) or face-to-face conversations ($D = 0.24, p < .01$) with other players. Although older players were less likely to play with offline friends ($D = 0.13, p < .01$) or new friends they knew in the game ($D = 0.11, p < .01$), they were much more likely to play with their romantic partners ($D = 0.25, p < .01$). Compared to younger players, older players were less likely to make new friends in the game even when they met someone who was of the same age ($D = 0.05, p < .01$), who was from the same hometown ($D = 0.08, p < .01$), or who has helped them before ($D = 0.04, p < .01$). For the older players, neither the motivation for social interaction ($D = 0.08, p < .01$) nor the desire to explore stories ($D = 0.08, p < .01$) in the game was as strong as the younger players.

Overall, although older players of CR3 tended to be more trusting of the people they met in the game ($D = 0.08, p < .01$) or in their guilds ($D = 0.10, p < .01$), they seemed to get fewer social benefits than the younger players. For example, older players reported a lower perception of bridging social capital ($D = 0.06, p < .01$), which stands for the relational outcomes for mingling with a broader set of social ties. They often reported a weaker attachment to the CR3 player community ($D = 0.10, p < .01$) and felt less bonded with other players in the game ($D = 0.13, p < .01$). Table 6 summarizes the results from the t-test described above.

Table 6: Results from the t-test (Age)

Measure	Younger (below 23.08)	Older (above 23.08)	Difference (Younger- Older)	Standard deviation
Frequency of in-game text chat ¹	4.34	4.23	0.11**	0.017
Frequency of voice chat ¹	4.12	4.04	0.08**	0.018
Frequency of face-to-face chat ¹	2.82	2.58	0.24**	.021
Frequency of playing with existing offline friends ¹	3.38	3.25	0.13**	0.022
Frequency of playing with new friends met in the game ¹	4.10	3.99	0.11**	0.016
Frequency of playing with romantic partners ¹	2.17	2.42	-0.25**	0.025
Likelihood of making friends with those of the same age ²	3.57	3.51	0.05**	0.015
Likelihood of making friends with those who were from the same hometown ²	3.36	3.28	0.08**	0.015
Likelihood of making friends with those who have helped me ²	3.87	3.83	0.04**	0.013
Trust of people in the game ³	2.32	2.40	-0.08**	0.011
Trust of people in the same guild ³	2.19	2.29	-0.10**	0.012
Motivation for social interaction ²	3.88	3.80	0.08**	0.012
Motivation for stories ²	4.20	4.12	0.08**	0.013
Bridging social capital ²	3.85	3.79	0.06**	0.011
Attachment to the CR3 community ²	3.59	3.49	0.10**	0.013
Interpersonal bonds with other CR3 players ²	3.33	3.20	0.13**	0.013

* $p < .05$; ** $p < .01$

¹Measured with five-point rating scales, with 1 being “Never” and 5 being “Frequently”.

²Measured with five-point rating scales, with 1 being “Strongly disagree” and 5 being “Strongly agree”.

³Measured with a four-point rating scale, with 1 being “Strongly no” and 4 being “Strongly yes”.

5. Discussion

5.1 Summary

With a large-scale web survey, this study presented a preliminary report on the demographic distribution, play patterns and social experience of the players of a popular Chinese MMO. Overall, our preliminary results reveal some facts that on one hand demystify Chinese players from previous stereotypes about gold farming, addiction or cheating, and on the other hand reveal some interesting effects of gender and age in the social context of China.

Our results show that Chinese MMO players are simply “normal” players who seek an enjoyable adventure experience in the virtual world, and value the social encounters with old and new friends. They are well educated, young, and financially well off. They normally have a job, and tend to play the game with the comfort of their homes. They are often not lonely addicts to the virtual world. On the contrary, they often play together with old friends that they know before and outside the game world, and can still make new friends in the game. They value both storylines and social interaction that are afforded by virtual games. And they can have a strong sense of community, connectedness and identity within the game.

The study also reveals two interesting trends for the Chinese-operated virtual world. On one hand, there are more female players than what would have been predicted based on reports from North America (Williams, et al., 2008). This suggests that there may be some architectural and cultural elements in Chinese MMOs that make them a more inviting and meaningful playfield for women. On the other hand, there is a declining motivation for social interaction and story exploration among older players of Chinese MMOs. This segment of players also reported a weaker interest in in-game communication, new friendships and community participation.

5.2 Uncovering the Myths of Chinese MMO Players

Our results show that demographically speaking, Chinese MMO players are neither marginalized nor marginal segment of Chinese population. All major ethnicities are represented in the survey sample. Respondents come from metropolitan areas, cities, towns and countryside. Based on the IP addresses of the survey responses, CR3 players are geographically dispersed across all provinces and municipal areas in Mainland China. No evidence suggests that there are any particular financial, socioeconomic, educational or gender-related characteristics that would make gold farming, cheating or addictive play particularly reasonable choices for most Chinese players.

The results should not be surprising, however, given the increasing adoption and domestication of MMOs as a technology, a medium and a platform for both enjoyment and social interaction. When MMOs like *World of Warcraft* first entered the Chinese market, lack of private broadband connection made Internet cafés the only viable option for playing the game. Gold farming became a motivation for some entrepreneurial players as they discovered the easiness for interacting and trading with foreign players. The novelty of a new fantasy world based on Western lore and myths also made MMOs an attractive and even addictive virtual environment for exploring exotic cultures and identities. The fast-growing Chinese MMO industry for the past few years has produced numerous titles that draw their storylines and aesthetics from the unique histories, literature and folklore of China (Jiang, 2010). These homegrown MMO titles also afford communication and gameplay features that suit the habits and preferences of Chinese players (Cao & Downing, 2008). With the rising affordability and availability of broadband connection as well as increasing adoption of social networking technologies, MMOs have

become more widely accepted and used by more users in more regions in China. As a result, MMOs become a relatively widespread entertainment and communication choice for more people (Niko Partners, 2012). In this circumstance, cheating and addiction may no longer characterize how most players make the use of MMOs as an everyday pastime.

5.3 The Social Draw for Female Players

The fact that about a quarter of CR3 players is women suggests an interesting trend in Chinese MMOs. Considering the total user base, there are more female MMO players in China than North America. This may be attributed to the particular design, narrative and aesthetics in CR3 that are more appealing to women users. Yet it may also reflect and coincide a trend in which more women in China are adopting technologies like video games and social networking sites (Eklund, 2011; Oreglia, 2009/2010). For some games and social networks, women may have even become the dominant users (J. Hou, 2011).

Female CR3 players seem to enjoy the game as an open, rewarding social environment that is rich in social capital, even though their communication and interaction may be more restrained and reserved. The ability to play with both old friends offline and the opportunity to meet new friends in the game seem to be strong appeals for women players in China, in addition to the chance of exploring a great story line. This phenomenon may suggest a stronger capacity for women to adapt their communication style and behavior to an otherwise male-dominated virtual world (Eklund, 2011). For example, they are more likely to donate items to their guild banks, while avoiding public chat over the in-game channels. This may help female players gaining sufficient recognition and respect in the player community without disclosing their gender and facing potential harassment or mistreatment. This strategic combination of communication and in-game action may contribute to a positive cycle between more active usage of online games and more social benefits for female gamers in China.

5.4 Older Players Enjoy Less

The findings also suggest that as CR3 players get older, they seem to be less active and feel less attracted to the social environment of a virtual world. For example, older players report a lower usage rate of in-game text or voice chat, and perceive a weaker sense of community attachment and interpersonal bonds. Although they may become more trustful of people they meet in the game, their gameplay is much less likely to be driven by the need for social interaction. The reason may simply be time and resource constraints. Older player appear to be more likely to have a regular job, have higher income and engage in a stable romantic relationship. All these life and relational commitments may make sustained use of a fantasy world like CR3 difficult for players above the age of 23.

Compared to reports on North American players (Williams, et al., 2008), the majority of MMO players tend to be young adults around the age of 23. Although the direction of causality is hard to determine, it is reasonable to assume that the Chinese MMOs are designed and marketed in a way that appeals to a younger demographic that may have less disposable income but more fringe free to spend (MacInnes & Hu, 2007). This business model may result in the design of stories, battles and guild systems that emphasizes instant and intense satisfaction. For example, quests can be designed around romantic stories that are more suitable for younger players who are exploring romantic relationships. And the players are encouraged to use brutal force than careful planning (Griffiths, et al., 2004). Without further speculation, it is worthwhile to investigate the specific architectural design that may have alienated older players in this particular game.

6. Limitation

The study has two major limitations. The first limitation is in the methodology. Because all the variables are taken from a cross-sectional survey, it is impossible to make causality claims. As a result, there is no way to determine if the gender and age patterns of CR3 play are caused by dispositional and personal preferences, or if the game is designed and operated to attract women and older players. The use of self-report measures, furthermore, makes it difficult to assess the validity and accuracy in the observed play patterns.

The second limitation is generalizability. Although the subject of the study, CR3, has a fairly large user base, it is only one of about a dozen MMOs in China that millions of Chinese MMO players use on a regular basis (Pearl Research, 2012). Due to design and operational differences, other popular MMO titles may afford a different play and social environment. Players' experience and perceptions may differ from what is observed in this study. Therefore the age and gender influences on game play in CR3 might not be generalized to describe the social landscape of Chinese MMOs.

7. Future Research

It is necessary to combine the self-report, cross-sectional measures in this study with server-side behavioral variables and conduct longitudinal research about virtual worlds in China. This integrative approach will uncover the exact individual activities that are responsible for players' communication and socialization choices, and reveal the community processes that may have lowered older players' declining social use of MMOs. One of the advantages for using objective behavioral variables is that players' activities can be observed in an unobtrusive and systemic way (Williams, Contractor, Poole, Srivastava, & Cai, 2011). Such an approach will make it possible to generate more valid and reliable insights for extending gender role theory and developmental psychology in the virtual world in the social context of China.

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