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Abstract

Global development of online gaming, especially of Massively Multiplayer Role Playing Games (MMORPGs) has been phenomenal, but has evolved in different ways in different countries. The experiences of this industry (and its developers, players, regulators, and other stakeholders) in the US and China have been particularly interesting. Whereas China has seen the growth of gameplaying in Internet cafés, American gamers play mostly at home. China's gamers live mostly in urban areas where fast Internet accessibility is available, whereas US adoption has been more ubiquitous. An analysis of the gaming industry in China is presented, along with a framework for assessing the popularity of games in China in the future. Finally, a forecast for future gaming industry developments is provided.

Keywords: Game, MMORPG, China, strategy, popularity, interactivity, net cafés, development

Background

The Pacific Ocean separates North America and Asia. These continents are very different as they are distant. China has over 1.3 billion people, which is more than four times the population of the U.S., which implies a huge potential gaming market. However, she has largely missed the first few chapters of the gaming boom before the online game era began. On the other hand, the United States, the world's leader in interactive entertainment, has experienced a prosperous gaming industry for several decades. 1997 marks the year of the first commercially successful MMOG in America: Ultima Online. That year, the title hit over 250.000 subscribers. In 1999, Sony Online Entertainment released EverQuest, the first 3D MMOG, which landed over 500,000 subscribers. But few western online games have succeeded in China.

In the mid 90s, because of lower levels of disposal income, few Chinese citizens could afford a game console or PC. At the same time, piracy resulted in few companies wanting to release game software in Chinese. Piracy also led to the limited distribution of Western movies, music, and other entertainment. In 2007, while other companies feel frustrating. Blizzard Entertainment®'s World of Warcraft® ("WoW") increased its revenue from US$59.6 million (2005) to US$126.3 million (2006) in China mainland. This included revenue from game playing time, merchandise, and installation package sales (the9.com, 2007).

For the U.S., gaming industry is entering a new era, where internet technology and creativity will fuse to produce some of the most excellent online games of the world. Decades from now, people will look back and say that the Internet changed the definition of entertainment forever. As a potentially huge market for online games, the Chinese market for interactive entertainment is just the beginning. It has been hindered by a maze of regulatory, cultural, and business factors. The next section will establish the foundation for our analysis by presenting the essentials of online gaming.

Introduction: Online Gaming

The global explosion of broadband Internet accessibility has enabled an interesting social phenomenon – the widespread adoption of online interactive gaming by individuals who play against remote partners. Many of these games, which represent the future of interactive entertainment industry, incorporate complex graphics, highly involved strategies for interaction, and unusual rules dictating the abilities of the players, which are often very different from "real world" physical rules. According to Sharp and Rowe (2006), integrating business services into online games can potentially trigger intriguing possibilities for new cyber market, new business models, and new growth. The general online gaming activities participated by large quantity of individuals are referred to as Massively Multiplayer Online Games (MMOG), which are graphical 2-D or 3-D videogames played online, allowing players, through their self-created digital characters or "avatars," to interact not only with the gaming software but with other players' avatars as well (Steinkuehler, 2004). In many cases, these games are played by individuals who design a character (graphically represented by an "avatar") who can acquire various abilities and skills based on gameplay or even through economic transactions (buying shields, etc.). Some of these games are termed Massively Multiplayer Role Playing Games or MMORPGs. Many of these game environments are immersive virtual landscapes that enable players to experience rich interplay between their avatars, other players' avatars, and the graphical environment.

In some circumstances, this experience has been described as an addictive one. This socio-technical development has followed very different evolutionary paths in various countries, largely due to differences in economic environments, technical platforms, legal structures, and social factors. In Figure 1, the topology of MMORPG consists of three layers: real world or off-line world, data layer, and game world (Kolo and Baur, 2004). In the game world, all observable elements in an MMORPG game encompass such entities as: 1) the social micro-level of individual players, such as the fighting strategy used and that of the related characters on the other, such as the skills or the armor possessions, 2) the meso-level of social formations among players, such as player clubs or among characters, and 3) the social macro-level, such as the community of all Sims2 citizens.
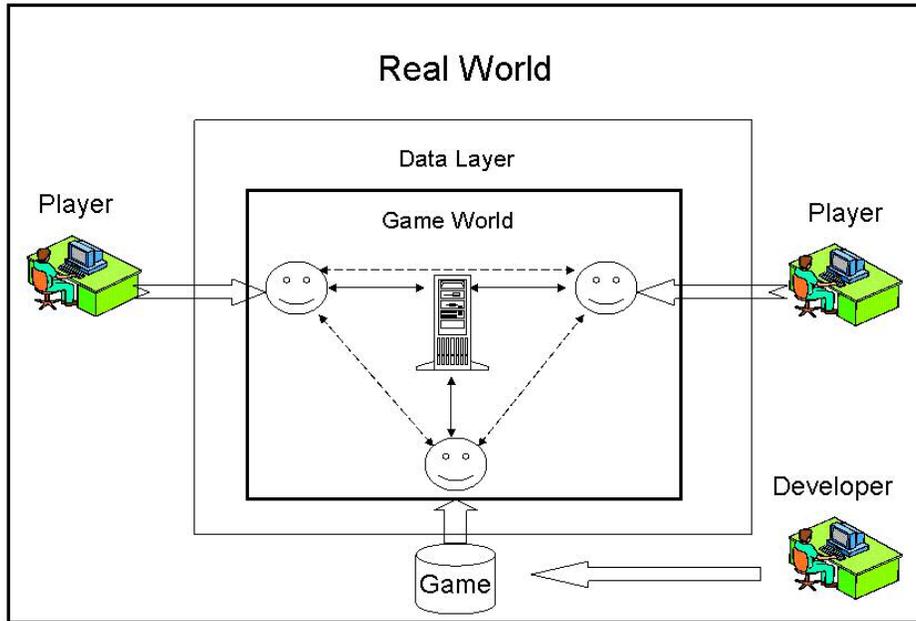
Figure 1: Topology of MMORGP
(adapted from Kolo and Baur (2004))

Proliferation Environment for Internet Add-on Services

The US remains the single largest population of Internet users in the world, but China is likely to take the lead before the end of the decade. A recent study conducted by the China Internet Network Information Center (CNNIC), an administrative agency responsible for Internet affairs in China, indicated that as of June 30th, 2006, more than 123 million Chinese residents (excluding Hong Kong and Macau, with penetration about 10%) have subscribed to an Internet service. (eMarketer Daily 2007) Over 77 million have adopted various types of broadband service (xDSL, Cable Modem, Fiber2LAN). (eMarketer Daily 2007) These figures represent an increase of 19.4% and 45.3%, respectively, since 2005.
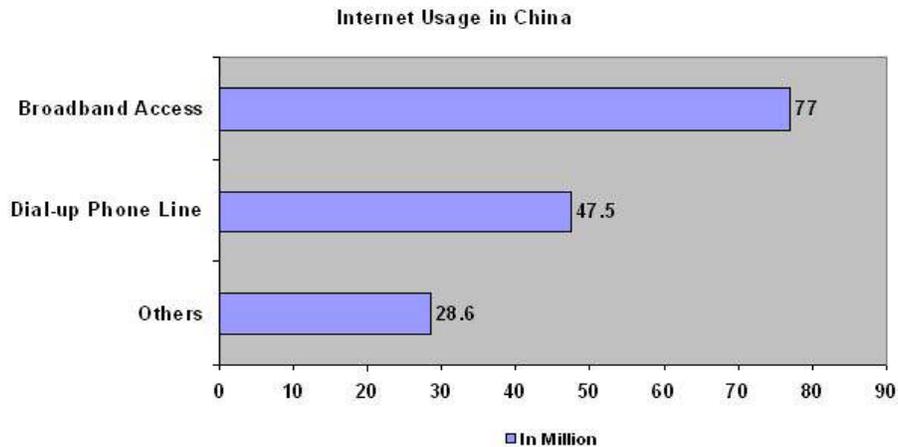
Note 1: The "Others" refer to the Ethernet line, Satellite, Last Mile Fiber, etc.
Note 2: Many users access the Internet through more than one technology,
hence the sum is greater than acclaimed 123 million.
Source: The 18th CNNIC Report, June/2006

Figure 2. Internet Usage in China

Net cafés, which originated from the idea of combining a café with Internet access in public places, are now the primary communication channel of Internet access for citizens, especially young urbanites, in such developing countries as China. Net

cafés can be seen as a shared-access model. Furthermore, the LAN gaming center, a variation of the net café business model, provides a revolutionary stage where the users can meet, discuss and exchange opinions, and most importantly, play online games *in teams*. The emergence of net cafés provides a feasible channel where these users who cannot afford personal ownership of computing equipment can access enormous resource of shared music, videos, movies, and games, etc. This is a fundamentally different paradigm of interactivity than the US model.

Among the 17 million new subscribers, about 12 million go online via broadband service. China has become the largest broadband adoption country yet been far from reaching the penetration maturity (potentially about 50% of the population, or about 650 million users). The digital divide between individuals living in developed areas (mostly cities) and those living in less developed areas is significant, in contrast to the widespread availability of internet connectivity in rural American and Europe. Furthermore, Beijing, Shanghai, and four other provinces host about 61.4% of websites and own 64.4% domain names in China (from 22 provinces and 4 direct-controlled municipalities). (eMarketer Daily 2007)

The surfing time for Chinese Internet users now averages about 16.5 hours per week, a historical high as well as one of the highest in the world. (eMarketer Daily 2007) The CNNIC report also pointed out that students (ages 6 to 18) account for a quarter of overall Internet users in China. Over 53% of online surfers are less than 24 years old.

In contrast, there are 207,161,706 Internet users in the United States as of August 2006, with overall 69.3% penetration (Nielsen/NetRatings, 2006). The number of U.S. broadband subscribers reached 42.9 million in June 2005, according to the Federal Communications Commission. A year later, broadband penetration surpassed 50% of the country's households with a milestone record of 60 million residential subscribers. It is projected that the number of broadband-equipped households will rise to 68.9 million by 2008 with annual increase of 13.32% (eMarketer.com, May 2006). Compared to China, the U.S. has well established ground work for broadband pertinent products and services to evolve. According to a recent report by the In-Stat research firm (Macklin, 2006), as of the third-quarter in 2006, nine million US households had at least one active VoIP user, namely one of four households will have VoIP service (eMarketer.com, December, 2006). Fairly mature penetration rates and synchronous value-added services symbolize the current and future Internet usage in U.S.

## Online Game Play in China: The Market, Social Impact, and Business Opportunity

Although in China it is too early for business organizations to reap the benefits of maturing broadband penetration as their counterparts in the U.S. do, the first movers in the industry have enjoyed the business successes brought by the value added broadband services that started taking off in the beginning of 21st century. A leading example is the online game business. From 2000 to 2006, China has maintained the highest growth rates (35% annually, according to the IDC Group) of online gaming marketplaces in the world. In 2006, the estimated number of people playing online games rise to 31.1 million, among which 20 million ordered fee-based game service. About 26 % of Internet users take online games as a most frequently used service, up from 13.6% in 2000 (CNNIC, 2000/2007). The financial value of Chinese online game market reached 6.254 billion RMB (approximate US$ 839 million) in the last year(Sina,2007). The leading three game vendors: Netease, Shanda and The9, all NASDAQ listed, have respective market shares of 27.3%, 15.12%, and 9.4% (The China Perspective, 2006). As Figure 2 shows, the increasing rate of Chinese online gamers has leveled off recent years, but is expected to remain steady in the next few years.
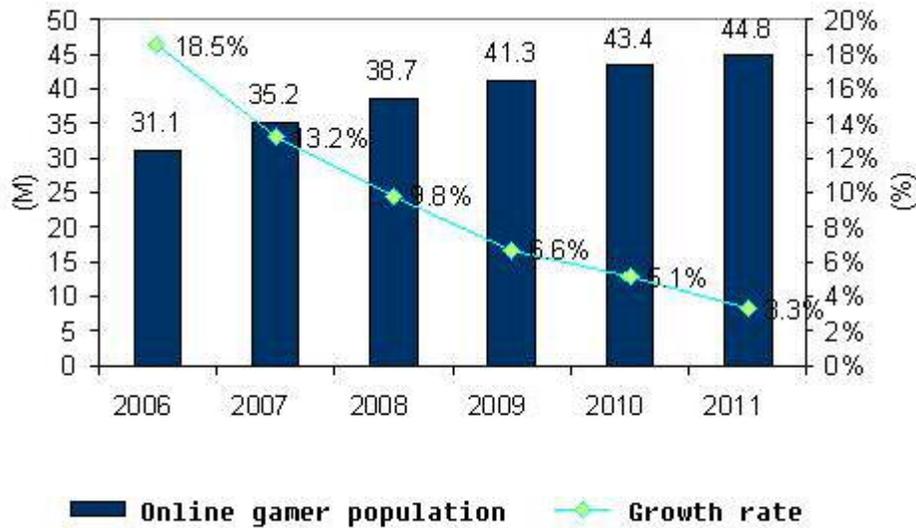
Source: IDC, 2006

Figure 3. Growth in Number of Chinese Online Gamers

In 2005, the video and PC game sales in U.S. decreased 5.4% to $7 billion, 69% of American heads of households play computer or video games. There are significant numbers of *frequent* game players. 44% of them say they play games online, up from 19% in 2000. Only 7% of online gamers play Persistent Multi-Player Universe, also called MMOG (NPD Group.2006). In 2006, WoW's popularity drove revenues for the massively multiplayer online game (MMOG) sector to $576 million for North America alone (Screen Digest, 2007). This represents about two thirds of the size of the Chinese market.
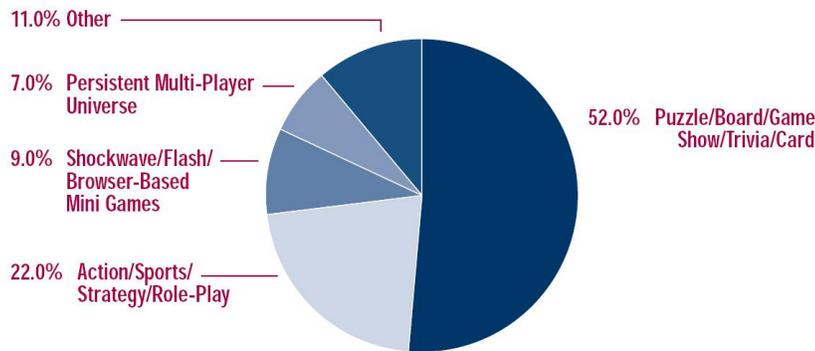
Source: ESA, 2006

**Figure 4. What Kind of games are played Online by American**

Social-economic influence can explain the difference of the ownership of legitimate online games between the U.S. users and Chinese users. With high proliferation of gaming technologies and world leading economic status, it is very common for U.S. customers to pay $48.00 (374.4 RMB) or more for an online game. Chinese players, on the other hand, would hesitate to buy a comparably priced product. Such reluctance can be attributed to two factors. First, there is a substantial financial cost. It is estimated that about 50% of Chinese online game players who play in net café spend less than 100 RMB (US$ 12.82) per month on such service. The 2006 CNNIC study showed that over 60% of Internet users, mostly students, earn less than US $130 monthly. Second, there is a switching time involved between games. The time for most gamers (47%) adhering to a certain title is from 30 to 90 days, according to the CNNIC report.

Therefore, many Chinese players avoid purchasing legal copies of game software – mainly because the cost-benefit ratio is too high. An exception might be online game s. Online gaming software is typically given away to induce players to sign up for a subscription-based online account, so piracy is a much smaller issue For a very popular game, such as World of Warcraft (WoW), players also must buy the software. China has 111 online game titles on the market while 218 online games

are under development (IDC, 2006). Because competition is so great, game developers must be creative and patient in seeking Return on Investment (ROI). Free online games, which are supported by alternative revenue sources, seem to provide a promising solution. (One such example is Real-Money-Trading (RMT).) Nevertheless, the virtual game accessory trade appears to be a more significant element of the trend. It has essentially evolved into a sub-system of online game economy that some analysts refer to as a future major market. Players can gain advantages in fulfilling quests and improving role status in the game by purchasing necessary gear or equipment, provided they enjoy the game and decide to stick to it. Millions of Chinese youth use real money to buy game credits, the virtual currency in a virtual world, from drug stores, newsstands, and game vendors.

Industry leaders and followers had long realized the potential of RMT. QQ Show is an Internet value-added service launched by Tencent, a Chinese Internet company that went public on the Hong Kong Stock Exchange. Users could pay Q coins for fashionable clothes, gorgeous jewelry, splendid scenes and lovely gifts to individualize their "avatars." Similarly, at QQ home, users can buy various kinds of housing facility and decorate their own virtual home. Revenues from those services increased by 132% to RMB 1,825 million for 2006. (Tencent, 2007) Shanda Entertainment (SNDA) was the leading operator of China – it had committed to a strategy of harvesting RMT benefits. Its profits grew 220.6% to 529 million RMB while the revenue declined in 2006. (Google, 2007)

SecondLife.com, established by Linden Labs in San Francisco, also conducts online land and avatar businesses. It supposedly represents a very real economy, generating hundreds of thousands of real dollars of commerce daily. It self reports an astonishing L$314,101,463 (L$:Linden Dollar) were earned in December 2006 (SecondLife.com, 2006). That's USD $1,163,338 of value by Linden's average "exchange rate" of Linden Dollar/USD. Real-Money-Trading's recognized as a significant new trend and opportunity for online game market. Similar business models exist in the U.S. and China.

World Wide Online Game Revenue
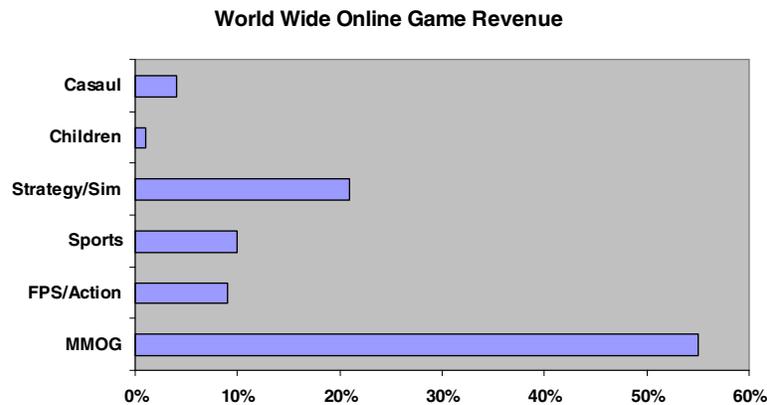
Source DFC Intelligence, March 7, 2006
Note: MMORPG remains as the mainstream of the online game landscape.

Figure 5. Global Online Game Revenue

Besides the economic influences of online games, society also feels the pain of game addiction and personality dysfunction that has become rampant among gamers, especially those who are teenagers. China, a collectivist country that is based on Confucius philosophy, considers "*guan xi*" (interpersonal connections or networks) as its lifeblood in personal and/or business relationships. Owing to "*guan xi*" that stems from the traditional Confucius belief of close bonding with one's family and group, a Chinese person's existence is defined by a bilateral relationship with another person, and Chinese people operate collectively having close relationships with their immediate groups and those out of this network are considered as outsiders. As such, cyber social connection, which is deemed crucially important in the Chinese online environment, can drive Chinese gamers to communicate and socialize in net cafés where they can play online games in teams and, more importantly, further develop their "*guan xi*" amid team members. Contrary to the Chinese style of cyber social grouping, most U.S. users, however, tend to stay in their individual homes and socialize with each other via the Internet using online chat rooms or even audio-streaming technologies. This very difference, again, stems from the relatively unique sociologic understanding of relationships in which Chinese tend to focus on "*guan xi*" or close bonding with groups, whereas U.S. or Western individuals, based on Plato's philosophy, address comparatively more on individual rights or privacy.

Entranced by the ability of the Internet that supports their desire to socialize and their longing for personal expression, gamers may behave unexpectedly in order to achieve the desired cyber-social status. In addition to some reported cases in

which gamers leveraged hacking tools to steal others' precious cyber equipment, there are many documented examples of socially undesirable behaviors associated with gameplay and game addiction. For example, in 2004, a young female online game player from Shanghai anonymously posted on a weblog her experience of trading sexual services for virtual game gear so she could outperform other players in MU, a Korean-developed MMORPG. (Jing Bao, 2005) Later, she was interviewed by a journalist and said: "After a certain level in MU, your status is completely dependent on what equipment you have. Without proper equipment, the character is weak no matter how high level s/he can get to. The armor that I craved cost 2,000 RMB and the seller suggested that if I cannot afford it, a one night stand will do too." After meeting in person prior to the deal, they went to the seller's place. "The beforehand meeting was necessary," she said. "If there had been anything I don't feel like about him, I could have terminated the transaction." She fulfilled her part of obligation only after seeing him transferring the armor plus the 20 rubies to a mutually agreed third party, another virtual character in the game. After was asked if it is worthy and ethical, she replied: "The first time I did it I felt somewhat uncomfortable. But I think it is worthy." Further, she explained to the journalist why she needed the equipment so much: "I feel wonderful with great sense of success and self esteem when I win the match, finish the quest, and become famous in my region. I cannot succeed without those precious equipments." Obviously, it is easier for her to perceive the enjoyment in a virtual game than in the real world. Nevertheless, the psychological aftermath haunted her life. She felt helpless and seriously depressed for being addicted to the game and turn to the Internet as an emotional outlet since she cannot imagine telling her story to family and friends.

Many think it is another form of prostitution that exploits legal loophole and should be stopped. However, things are getting out of hands these days as more addicted female players yearn for superb rare equipments and publicized personal information online waiting for higher bidders who spent days and nights playing to get the desired items.

Excessive game playing also is a serious social problem, average gaming time of Chinese online gamers were 5 hours per day. 35.6% of Chinese gamers had virtual properties stolen by hacker (IDC, 2005). Fighting has even spread out of the game, causing violence in the real world

Gamers in America devote more than triple the amount of time spent playing games each week to exercising or playing sports, volunteering in the community, religious activities, creative endeavors, cultural activities, and reading. In total, gamers spend 23.4 hours per week on these activities, compared to 6.8 hours per week playing games. (Entertainment Software Association, 2005)

As a developed country with a smaller population, the U.S. offers more options for leisure activities. Its more mature gaming industry offers various games to customers. In 2005, action (30.1%), sports (17.3%), and racing (11.1%) were top three best-selling video game genres. The best-selling computer game genres were strategy (30.8%), family & children's (19.8%), shooter (14.4%), and role-playing (12.4%), by units sold. (ESA, 2006) In the general term of gaming, World of Warcraft, Half-Life2, and Warcraft III remain popular in both two countries. Meanwhile, oriental cultures affect the Chinese online gamers gradually. Self-developed online game Westward Journey Online 2.0 and Fantasy Westward Journey all based on an ancient Chinese masterpiece-Pilgrimage to the West, which are major contributors to the revenue of Netease (RMB 1,700 million, 2005), with a stunning gross profit over 80%. For Western game makers who do try to penetrate the Chinese market, it takes more than translating text into Chinese to succeed. Games must reflect local tastes and sensitivities with which most Western developers aren't familiar.

The Net Café Business Model of Chinese Online Gaming

The operational mode for online game industry, taking China as an example, is shown in Figure 6. In reality, the identities of game developers and carriers are inter-changeable. Many carriers have both in house developed products and licensed games that are purchased from other developers. In China where import games dominate and locally developed games are rising, it is wise to do so as profit growth points are diversified while risks are mitigated. Carriers supply credits, accessories, and other pertinent products to customers through a variety of channels. Many have their own official sales outlet, either online or offline, in major cities in addition to such supplemental channels as newsstand, drug stores, and net cafés. Online game industry is an incorporated business in a sense that it necessitates inputs from IT, network providers, and traditional business like advertising. A smash hit game is similar to a black hole that absorbs huge number of players to hosting servers hence it is not uncommon that network operators, China Telecom for instance, tap into the online game business by opening game centers that utilize enormous bandwidth advantage.
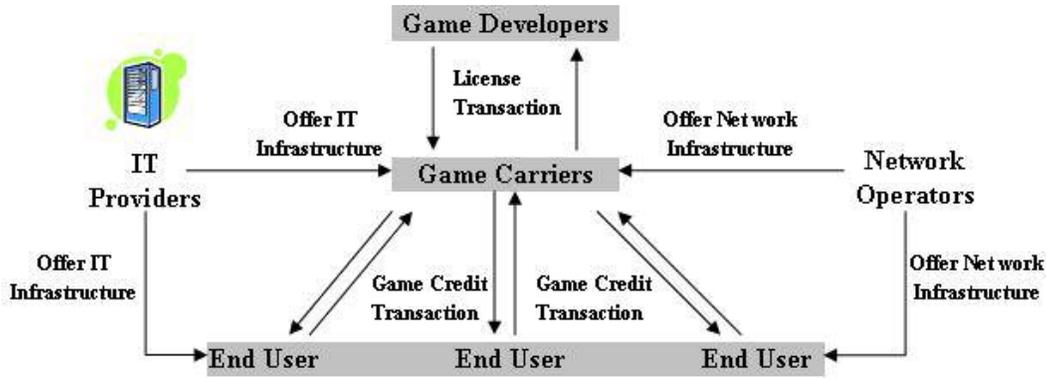
Figure 6. Operational Mode for Online Game Industry in China

According to the PRC gaming report by IDC in 2005, the Average Revenue Per User (ARPU) generated by online game service is lower in China than such developed countries as U.S., Japan, and those in Western Europe. The average monthly spending for online games in China was 78 RMB (approximately $9.87), while the rates in the U.S. and Japan are significantly higher (75 RMB to 150RMB per month in U.S. and 118 RMB to 197 RMB per month in Japan based on exchange rates of U.S. $1 = 7.81 RMB).

Studying the role played by net cafés adds another lens to understand Chinese online game industry. Computer games emerged and proliferated in net cafés before PCs hit the Chinese household. Millions of youngsters hang out in net cafés where physical interaction and virtual engagement coexist, as shown in Figure 7. As one regular net café customer pointed out: It is cheaper compared to surfing at home. But what is more important is to bring the feeling of merging into a crowd of friends and strangers. Unlike in U.S., where majority of gamers play online game at home and broadband access is widely available in public, more people visit net cafés in China. In the beginning, the net café also provided those who cannot afford IT peripherals with access to those technologies. Although it still makes economic sense to play in net cafés, many people do so because of other reasons. According to a survey of 2,311 participants conducted by iUserSurvey in 2004, the top reasons why people play online games in net cafés are (1) the experience and atmosphere shared by players with common interest (48.3%); (2) a good place to socialize with friends (46.6%), and (3) "convenient service such as food and beverage ordering."
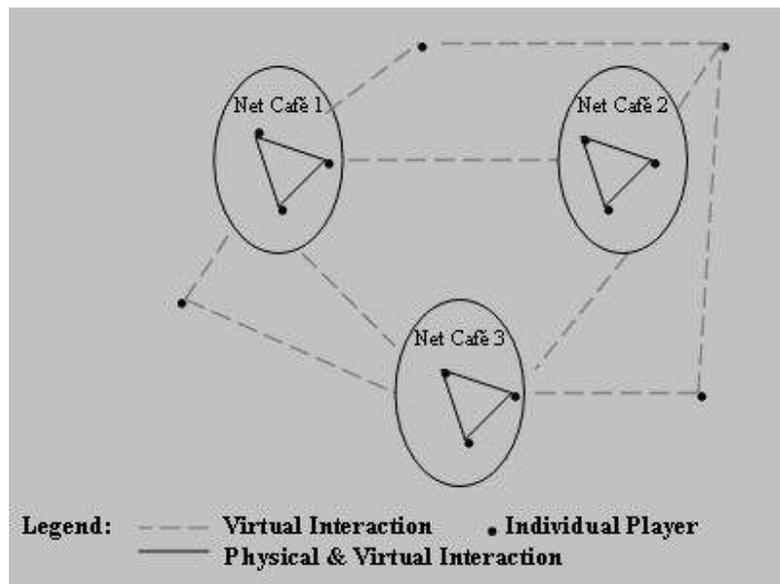

Figure 7. Interactions among Net Cafés

Net cafés in China are currently experiencing structural changes when the number of such facilities has decreased to around 100,000 in beginning of 2005, only half of the 2002 numbers. 2005 was the 7th consecutive year of negative increase (iResearch, 2006). There are currently about 100 thousand net cafés operating in China. Similar circumstances can be seen in

South Korea, where net cafés also enjoyed an explosive expansion in 1998, followed by flat growth in the following two years. By 2002, the number of net cafés declined to approximately 20 thousand. However, the number of PCs owned by these cafés has increased as large scale cafés were taking over small- and mid-size businesses, accompanied by franchise formulation. This phenomenon, in turn, has implications for the Chinese net café landscape. The net cafés in U.S., although small in numbers, also render successful practices to Chinese counterparts. In the U.S., few net cafés can survive by simply offering technological peripherals and Internet access. E2Café (www.e2café.com), a Florida-based business, has three franchised stores in Miami and maintains its customer loyalty by offering competitive usage rate to club members who appreciate the closeness of small group interaction. Another enabler of success is the diversification of company's business. In addition to tournament administration, online socialization and high speed Internet, E2Café offers technical support service, showcase of the latest video game, and public test for newly released online game.

Based on previous information, we argue that the landscape of Chinese net café embodies the following traits.

First, we see tightened governmental regulations for running net cafés: In 2004, a fire broke out in Beijing's "Lanjisu" cyber bar and 24 lives were lost, resulting in nationwide attention focused on unlicensed net cafés. These net cafés are usually operated on a small scale with substandard physical infrastructure by owners who are reluctant to satisfy safety regulations. In order to offer extremely low usage rates, these cyber bar owners avoid carrying out safety laws enacting fire control equipments and emergency exits in business. After several similar accidents occurred across the country, net cafés operators are facing much tougher restrictions and more complicated legal processes. The Chinese government has also cracked down on pirating online games propagation among net cafés, which allows legitimate business to avoid financial loss due to intellectual property theft. In the past, by hosting pirated online games without paying license fee, some net cafés had offered extremely low rates to attract customers. But they also offered poor after-sale service and high network latency, which frustrated serious game players.

Second, there have been soaring operational costs for net cafés. New games require premium hardware platform and high speed network connection to operate in a satisfying manner. Hardware upgrade in net café occurs at short intervals since latency significantly affects gaming experience in networked entertainment environment. (For more information, see Brun et al. 2006 and Claypool et al. 2006.)

Third, there have been higher penetration rates of broadband technology and more affordable games: For many Chinese gamers, going to net cafés is no longer required as the broadband technology reaches millions of households. The improving economic status of Chinese citizens also allows for buying more online games than before. Although hanging out in net café is still one major entertainment for gamers and Internet surfers, the net café owners need to re-evaluate what the elements are to keep their business running profitably. Service will top price as the X-factor of last mile competition.

Finally, the net café is in a process of functional transformation in accordance with customers' changing demand. By holding game tournaments and organizing public relation events, the net café assumes a more infusive role instead of simply offering cheap Internet access and pirated game software.

Popularity Framework

By comparing the most popular games played in net cafés and those in other occasions, a framework is proposed to reveal the pattern of computer game popularity based on two dimensions: Complexity of Human-Computer Interaction and Desired Physical Interaction. (See Figure 8.) The framework provides a general guideline where the complexity and level of desire are continuous in nature rather than binary or extreme. Depending on environmental settings, the elements may span several coordinates or may move to other coordinates. They may even appear in more than one segment. Most online games, such as WoW and Counter Strike, fall into the top right coordinate and have become widespread standard games in net café, where team spirit can be cultivated and boosted via physical and virtual processes.
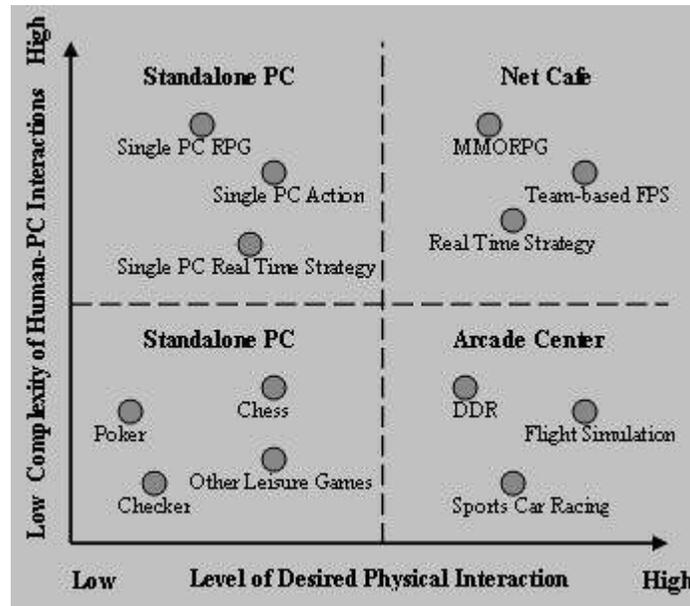
Figure 8. Proposed Popularity Framework

Future Chinese Online Game Marketplace Characteristics

Changing conditions in the Chinese economy and social environment are introducing changes to the online gaming landscape in China. We see the following changes as likely.

First, as net cafés shift from cheap Internet/game service provider to major nodes of social networks consisting of stakeholders such as developer, carrier, advertiser, and end user. Integration and franchises will become prevalent in major cities.

Second, stronger collaboration will be seen between upper stream (software/game developer, carrier) and downstream (net café, sales channel, end user) stakeholders. Creative business models and new profitable areas (tournament, marketing campaign, and diversified service) are to be further revealed and utilized.

Third, polarization among game vendors will aggravate as renowned developers release series products of already proved successful games while new games from prestigious game companies (e.g. Blizzard Entertainment) keep rolling out.

Finally, as China's broadband penetration rates keep rising, regional operations of online games emerge in small/mid sized cities and rural areas.

Compelling and diverse game content, new business models (i.e. free-to-play, avatar), lower cost for playing games (at an average of $10 per month (IDC, 2005)) and a lack of entertainment alternatives are listed as reasons for continuing high grown in the Chinese games market. China is likely to see increasing numbers of Western developers using Chinese companies for game development and outsourcing due to low costs, a large labor force and robust infrastructure. Savings are estimated at between 20 and 40 percent for activities such as art creation. However, the costs such as travel, training and project management can erode many costs savings overall.

Product quality, intellectual property protection, cultural differences and the competition for skilled employees are also cited as potential problems when running gaming business in China. As Chinese companies gain experience and develop best practices, these problems will improve in the long term.

Government agencies in China must balance two conflicting agendas for the games market. They must foster a fast-growing industry that is a source of tax revenues and job creation. Yet, they must also respond to growing social criticism over game violence and addiction.

The divide is a result of various government agencies all with different agendas. The Ministry of Science and Technology's mission is to promote technological innovation so it will be more supportive of games, whereas other agencies (Gamasutra, 2007) are tasked with regulating content. Parents view games as unproductive and a hindrance to their children excelling in

school. Sensational press stories of game addiction and violence have made the games industry an easy target for government officials and politicians.

Conclusions

Over the coming years, there will likely be increased growth in number of online gamers, given the expected increase in broadband availability and increase in discretionary incomes. No nation is likely to see more growth overall than China, with its current growth rates and burgeoning urban population. The unique characteristics of the Chinese gaming market, especially the role of net cafés and game carriers, will also continue to evolve as the marketplace seeks a new equilibrium point in reaction to new economic and technological conditions. As the Chinese socio-economic environment continues to become more individualistic and consumer-oriented, perhaps more players will choose to purchase the necessary equipment and play at home – thereby fundamentally changing the culture of gaming in China.

The US market is more mature and its population demographics are less dynamic, leading to a more stable near-term future for its gaming industry. The technological landscape will certainly impact developments in gaming, as would widespread inexpensive access to mobile broadband capabilities. Another potential US trend that may affect the gaming industry is the coming rollout of higher bandwidth broadband via improved ADSL and fiber networks, especially in urban areas. Such bandwidth would enable richer and more satisfying interactive experiences.

References

Brun, J., Safaei, F. and Boustead, P. "Managing Latency in Networked Games," Communications of the ACM (49:11), 2006, pp. 46-51.

Claypool, M. and Claypool, K. "Latency and Player Actions in Online Games," Communications of the ACM (49:11), 2006, pp. 40-45.

DFC Intelligence. Online Game Market Forecasts, 2006. pp. 1-165.

eMarketer Daily. "One Tenth of China Online," eMarketer Daily, 1 February 2007, accessed at http://www.emarketer.com/Article.aspx?1004531&src=article1_newsltr on 1 February 2007.

Entertainment Software Association. "Essential Facts about the Computer and Video Game Industry," accessed at http://www.theesa.com/files/2005EssentialFacts.pdf on 18 April 2007

ESA, Essential Facts 2006, top-selling game genres, accessed at http://www.theesa.com/facts/index.php

Federal Communications Commission. 12 April 2006. accessed at http://www.internetworldstats.com/am/us.htm on 26 December 2006.

Gamasutra, Industry News, accessed at http://www.gamasutra.com/php-bin/news_index.php?story=12527 on 18 April 2007

Google, Google Finance, 2006 Annual Report, accessed at http://finance.google.com/finance?q=SNDA

IDC Association. "China Gaming Market Analysis and Forecast 2004-2009: Special Study," May, 2005, pp. 1-252.

iResearch Consulting Group. "CNNIC Internet Industry Research Report," July 2006, pp. 1-126.

Jing Bao. accessed at http://www.sa20.com/inews4/newsroot_3000/newsguang_3023/ 30th August 2005.

Kolo C. and Baur, T. "Living a Virtual Life: Social Dynamics of Online Gaming," The International Journal of Computer Game Research, (4:1), 2004.

Macklin, B. "US Broadband Reaches More than Half the Country," eMarketer Daily, December 21, 2006, accessed at http://www.emarketer.com/Article.aspx?1004403 on 26 December 2006.

Neilsen Ratings. August, 2006, accessed at http://www.internetworldstats.com/articles/art030.htm on 26 December 2006.

Sharp C. E. and Rowe, M. "Online Games and E-business: Architecture for Integrating Business Models and Services into Online Games," IBM Systems Journal, (45:1), 2006, pp. 161-179.

Steinkuehler, C. A. "Learning in Massively Multiplayer Online Games," Proceedings of the 6th international conference on Learning sciences, Santa Monica, California, 2004, pp. 521 – 528.

Secondlife.com, Economic Statistic, December 2006, accessed at http://secondlife.com/whatis/economy_stats.php

Sina.com, Sina Games. 17 January 2007, accessed at http://games.sina.com.cn/y/n/2007-01-17/1806183875.shtml

The China Perspective. "China online game market reached 1.78 billion in Q2," The China Perspective, 6 September 2006, accessed at http://thechinaperspective.com/articles/chinaonlinegamemarketreached178billioninq2/index.html on 26 December 2006.

The9.com. "The9 Limited Reports Fourth Quarter and Fiscal Year 2006 Unaudited Financial Results," 14 February 2007, accessed at http://www.the9.com/en/news/2007/news_070214.htm

Tencent.com. "2006 Annual Report," 21 March 2007, accessed at http://www.tencent.com.hk/index_e.shtml